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SNOW LEOPARDS

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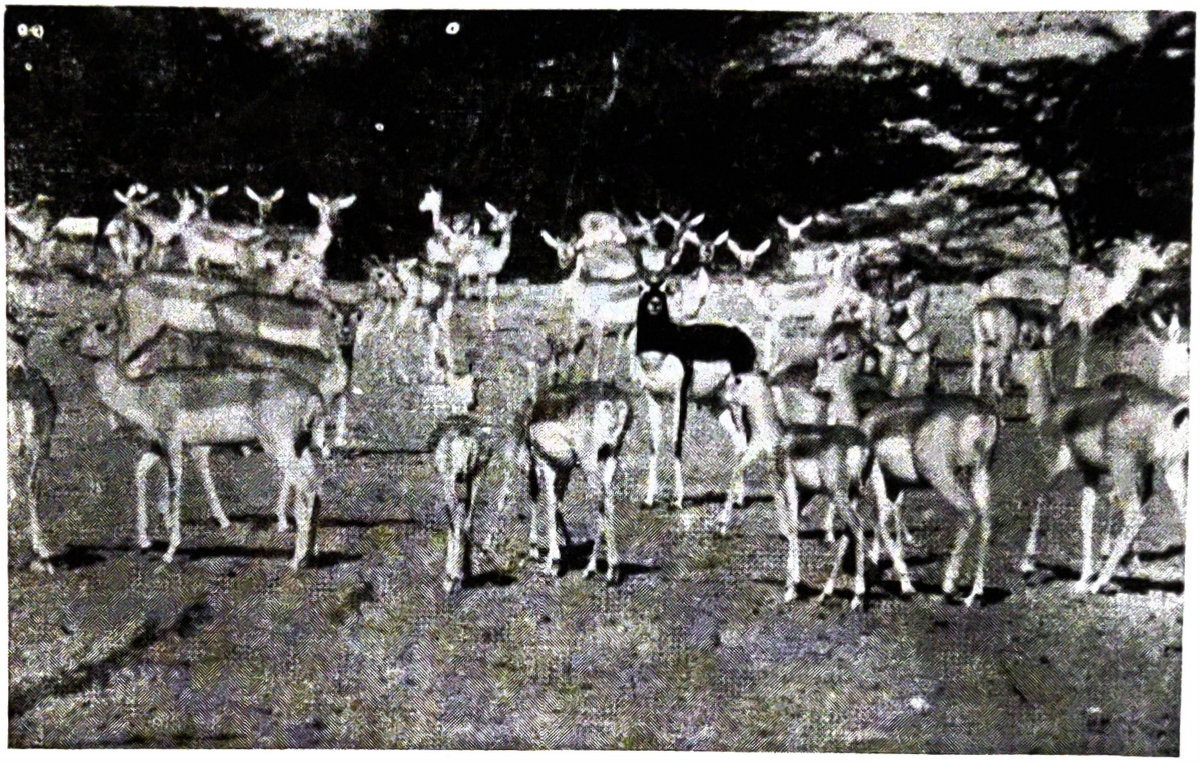

The Herans. *Photo by Shailendra*

WPSI Greeting Card for 1982 with the above photograph is available at Rs. 2/- each, (postage extra) from the Honorary Secretary, WPSI, 7, Astley Hall, Dehra Dun. Please order.

Appeal

The Wildlife Preservation Society of India has purchased the building, 7, Astley Hall and so now has a home.

Part of the purchase price has been paid and the balance has still to be paid. Patrons, Members, and Sympathisers are requested to donate generously so that balance may be paid soon.

Donations, big and small, may please be sent to the Wildlife Preservation Society of India, 7, Astley Hall, Dehra Dun, U.P. (India).

All donations will be gratefully acknowledged and the names of donors published in CHEETAL.

PRESIDENT
and
The Executive Committee

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A Rude Shock

Only 13% Land Under Forest In India

The Inspector-General of Forests, Mr. N.D. Bachkheti said here yesterday (October 21) that 45 million hectares has been deforested in India in the past 30 years.

Opening a two-day workshop on "Remote sensing techniques for afforestation and pasture development" here Mr. Bachkheti stressed the need for finding a quick solution to the problem of deforestation.

The country now has hardly 13% of its area under forests. The only alternative, therefore, was to raise plantations of timber, fuel wood and fodder on a large scale in understocked and degraded forest land and waste lands.

This was possible only by improved silviculture practices, he added.

Mr. K.M. Tiwari, President of the Forest Research Institute, Dehra Dun said the forestry scene would change in due course if only the forest area was increased by 2% annually.

Presiding over the inaugural meeting, he said the World Bank had sanctioned Rs. 100 crores for social forestry in India. Gujarat and U.P. had already started their social forestry programmes.

Voluntary organisations had been clamouring for more than a decade that the area under forests was much less than claimed by statistics the Government had declared that it was only 17% and now comes the shock that land area under forests is only 13%. Unless afforestation is taken up on a war footing and denudation and pilferage stopped the entire ecology will be affected and our national Wildlife heritage lost.

Dudwa National Park to be fenced

It has been decided to fence Dudwa National Park (490 sq km) in Uttar Pradesh to save Wildlife.

The expense will be five crore rupees but it will help preserve Wildlife and provide employment to workers engaged to fence the area.

It may also reduce the incidence of man eating tigers.

Madhya Pradesh is to have another (its seventh) National Park near Pachmarhi. It was recently inaugurated by Dr. Salim Ali the internationally famous Ornithologist.

Vanishing Wildlife

By and large a satisfactory progress has been achieved in the conservation of our wildlife and specially of endangered species like the Lion, Tiger, Rhino, Swamp Deer, Black Buck, Crocodile, Great Indian Bustard etc. under the aegis of the Indian Board of Wild Life, the WPSI, the World Wild Life (India) and a host of private societies and organisations that are actively engaged in this necessary and laudable work. There is however, no room for complacency and the programme for preserving natural habitats and environments must be carried on in top gear. That a separate Department of Environment has been constituted by the Union Govt. headed by a State Minister (Shri C.P.N. Singh), shows the importance that is being given to this subject. Large scale afforestation and tree planting programmes have been drawn up, all of which augurs well for the future.

All this, however, are "defensive" measures to save, protect or rebuild what we have or what we have lost or are losing. Without much extravagance, it might be possible to take up, a more aggressive policy and programmes like "spreading" the Lion and Rhino to other parts of India, importing various Asian and African species of animals and getting them acclematised in special parks that could be set up in suitable areas. Among Asian species, there are two varieties of Rhino, once found in India and now located only in remote corners of Malaya, Thailand, Borneo and Sumatra. These are the Smaller One-Horned Rhinoceros (R. sondaicus) and the Two Horned Rhinoceras (R. lasiotis or sumatrensis). Of these, the latter is fast approaching extinction. A pair of each variety could be settled in Kaziranga for example. African species like Cheetah or Hunting Leopard (until 1930 quite common in India), Zebra and various types of Antelopes, even Giraffes, could be introduced in Central India and in the Deccan. There are vast stretches of uncultivated grass or waste land between Agra and Bhopal and all over the Deccan plateau, which should be suitable to African animals.

A beginning is being made to introduce the Assam Rhino into the Dudhwa National Park (Distt. Khiri, U.P.). Gir lions, about 25 years ago, were released in the Chakia Forest (Distt. Banaras, U.P.) but owing to improper management or lack of experience, they did not survive and the project ended in failure after a few years*. A second attempt was never made, alas, but it is well worth another try.

It is simply unbelievable when one finds Indian species flourishing and thriving in other countries e.g. Bharal (Ovis nahur) in New Zealand and Cheetal or Spotted-deer (Cervus axis) and Black Buck (Antelope cervicapra) in the United States of America, to name only a few. Surely it is now opportune that something like this can also be started in India.

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September 26, 1981

*Most of them were shot by local population because of inadequate protection measure.—Editors

Himalayan Wildlife

P. MISHRA

Himalaya—the abode of snow—born of the clash of two continents defies description of all its marvels. The region has the highest mountain, the highest pass, the deepest gorge, and the highest living animals and such a phenomena exists nowhere else on earth. They can be over flown but not tunnelled, climbed, mapped and photographed but not visited. They are the youngest and the highest mountains in the world. It is region of constant earthquakes, land slips and floods. Their inhospitable shifting rocks are feared and worshipped. Their snows feed the valleys, water the animals and crops, nourish the priamula and pine. Ascending from the terai (wetland) jungle in the lower valleys to the snow line one finds botanical layers, and almost the whole range of worlds climate and hence its flora and fauna are concentrated within a few vertical miles from tropical jungle to frozen slopes and peaks.

During the last three decades the Himalayas have undergone a change for the worst. Their peace has been disturbed by military conflicts, by ruthless exploratiton to serve the new concept of "consumer Society" leading to escalation of consumption and production involving clearing of forests, thereby changing the rhythm of rainfall involving large scale erosion. The people, their cattle, goats and sheep and Wildlife are the worst sufferers. The barren eroded land supports no life or vegetation, the springs dry up and though there may be food, the fuel to cook it is missing.

Wildlife

The fascinating Wildlife of the region has vanished. Most animals have been put on the endangered list. Of the seven varieties of 'pheasants' six are endangered. The magnificent wild goats and sheep have been reduced to negligible numbers, the snow leopard and brown bear are scarce, the musk deer is successfully poached by parties that operate at above 12,000 feet near the snow line and export the musk pod to European markets where a single pod may be sold for a thousand pounds.

In the lower jungle clad region the 'Serow' is rarely seen, the tiger has been given special protection to save it from extinction. The number of deer and game birds has gone down considerably. The danger looms large that we shall lose out magnificent Wildlife heritage unless we can protect the habitat.

Who is to blame for this sad state of affairs ?—not so much the forest policy but its implementation. Not all foresters are enemies of forest and Wildlife.

Not the authorised 'Shikari' sportsman but the trigger happy neo-rich, not the occasional poacher but the businessman who employs poachers to make easy money by selling Wildlife for export and for internal consumption.

Business in timber and fuel is a recognised and approved occupation but in business no holds are barred. More trees are extracted from the forest than the authorised number-reducing the habitat for Wildlife, not the forest dweller—who is certainty not a conservationist but whose needs are fuel and timber for implements unless he starts selling fuel and timber. Not the forest grazier unless he has more cattle and goats and sheep than the area can support.

How can we save our forests and Wildlife ?—not by returning the forests to the forest dweller—but by finding means of sharing with him.

Not by letting him have his way or treating him a source of labour but by making him feel that he is the trustee and the custodian of forest wealth; not by educating the children in cities but by revising the syllabus of his studies to include elementry forestry.

Not by pressurising foresters to get more revenue but by making them real conservationists. Not by clear felling of trees on steep slopes thereby encouraging erosion but extracting timber scientifically. Not by growing trees in monoculture but by having mixed crops and by better protection of forests from fire and grazing.

The present law is sufficient but strict implementation is the need of the hour. Tomorrow will be too late.

Protect the Forests and you protect Wildlife.

The basic problem that faces the country today is the problem of rising expectations, the fall in moral values due to the commercial attitude to life—the lack of fear of God and man made laws and the idea that one can even get away with murder to say nothing of theft if one has money and a good lawyer to plead his case. The remedy partly lies in appreciating the relevance of teachings of Mahatma Gandhi and practising them. The other common remedy is detterent punishment for forest and wildlife offences.

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Sunderbans Tiger Reserve—an Overview

By

Shri P. Sanyal

Field Director, Sundarbans Tiger Reserve

Introduction:

Evolution of human being has been culminating from fire to fission, from primitive facets of muscle to facets of molecules. But in the race for survival, other species of animals are being exterminated. India, after hearing the last growl of hunting Cheetah in 1952, is also threatened with extinction of its age old glory of tigers.

The Project Tiger came into existence on 1st April, 1973 comprising of 9 of its tiger reserves viz. Corbett (U.P.), Bandipore (Mysore), Kanha (M.P.), Simlipal (Orissa), Sundarbans (West Bengal), Manas (Assam), Melghat (Maharastra), Palamau (Bihar), Ranathambore (Rajasthan). Two more have been added later.

The alarming number of tigers, as low as 1827 in the year 1972, has now become 3015 nos. (as per 1979 census). [1]. The tiger reserves started with the total figure of 268 in 1972 has become 711 nos. in 1979 census. The relative position of area of reserve and core area, i.e. the zone of wilderness, for different tiger reserves (now 11 nos.) are given below[2]:-

Sl. No.	Name of Reserve	Total area (in sq. km.)	Core area (in sq. km.)	1979 census of tiger population
1.	Manas	2840	360	69
2.	Simlipal	2750	300	65
3.	Sundarbans	2585	1330	205
4.	Kanha	1945	940	71
5.	Melghat	1571	311	63
6.	Palamau	930	200	37
7.	Sariska	800	350	19
8.	Periyar	777	350	34
9.	Bandipore	690	335	39
10.	Corbett	520	320	84
11.	Ranathambore	392	167	25

Sundarbans Tiger Reserve:

It will be apparent from above data that Sundarbans Tiger Reserve is having the third largest area in extent and is having the largest core area and highest number of tigers (205) far out numbering the second highest (84).

Habitat:

It is, indeed, interesting to note the special type of habitat of Sundarbans which is much less disturbed than all other reserves of India. Sundarbans Tiger Reserve, as distinct from others, is located in deltaic Mangrove forests. These forests consist of Swamp living Mangrove species which throws pneumataphoric roots and renders it almost impossible for terresterial cross-country walk. The mangrove plants can take water from saline, soil germination of seeds take place on the trees, a queer adaptation of nature to save its seeds being damaged by tidal water. Leaves develop special stomata and salt gland.[3] The tiger habitat is a combination of *Hantal* (Phoenix paludosa) bush, a species similar to dwarf 'date palm' and *Keora/Baen* trees (Mangrove species). *Keora* (Sonneratia apetala) and *Baen* (Avicenia officinalis) trees provide palatable fodder for deer and Hantal bush provides relatively dry hideouts for tigers. The prey animals are Cheetal deer and wild boars. But the deltaic swamps with its back-water channels cutting the land into innumerable creeks, have a profound effect on the food habits of Sundarbans tigers. The faeces analysis reveals that monkey, fish, crabs and other crustaceas are also eaten by the tigers.[3]

Although, there is no existence of antelopes and buffaloes, in the present biotop, but the recent subsurface remains speaks of the existence of black buck, wild buffaloe, rhinoceros etc.

Speciality of Sundarbans Tigers:

Sundarbans tiger is a masterpice of creation of nature. Owing to its grotesque habitat, preternatural legends, the tigers of Sundarbans has become a myth to the common folk, of course founded on facts. It is an existence with superb intelligence, extreme mobility, high tenacity of silent stalking of its human prey.

Unlike other Royal Bengal tigers, Sundarbans tiger, is having a lighter body, narrower mouth, and a very thin hang of tail.[5]

Perhaps most of the Sundarbans tigers are man eaters. Man eating frequency is 36 nos. per year on an average[3] and victims are normally aged between 35 to 40 years. Common season of casualty is April and May, the honey collecting season, and casualties take place between 7 a.m. to 9 a.m., 3 p.m. to 5 p.m. and around 11 p.m. at night. The ferocity of tiger directly depends on the increase of salinity of water and soil. Sundarbans tigers are not fond of having a territorial jurisdiction. They freely swim across even very large rivers

and move from island to island. This non-territorial nature, as distinct from tigers in all other reserves of India, has developed presumably due to obliteration of urination marks by the tidal water which renders a daily vertical variation of average 7′ of water level. The idea propounded at the last International Tiger Symposium[4], that death of human victim is not instantaneous does not hold validity in Sundarbans. In all cases of recovered dead bodies including one armed forest guard, recently killed, it was evident that death was instantaneous. In case of the death of the forest guard, the impact of the tiger's jerk can be well conceived from the fact that the double barrel gun carried by the guard broke in two pieces from the butt.

Tiger–Human relationship in Sundarbans:

The deltaic forests of Sundarbans which once (at the end of eighteenth century) consisted of 20,000 sq. km. of forests, have now dwindled to an area of only about 4000 sq. km. Slowly the reclamation of land for agriculture has overpowered the existence of forest. Dreaded Sundarbans tiger was destined to be exterminated both through gradual destruction of habitat as well as on gun point. At this crucial moment the Project Tiger came into being. Most of the human victims are honey collectors and fisherman. Incidence is frequent in the buffer zone of the reserve. It is interesting to note that, although there has been a steady rise in tiger population from 135 in 1972 to 205 in 1979 census, the average number of human casualty is really almost same (around 40 per year), which, perhaps, indicates that all the Sundarbans tigers are not man-eaters.

The extensive bloom of nectared flowers gives rise to an average yield of about 500 quintals of honey every year in the Sundarbans Tiger Reserve. The rivers of Sundarbans also provide large catches of famous Prawn (Bagda) . Crabs and various other sea fishes. The fishermen and honey collectors are traditionally used to the vagaries of Sundarbans where tiger is looked upon as one of the challengers, Even if the elder brother of a honey collector is taken by tiger, the next season's call cannot be ignored by the younger one.

The extreme feeling of enimity of the local inhabitants, is reflected from the occurence of brutal tiger killings, when any tiger strays within habitation.

Recently, however, the situation has improved a lot due to measures taken up by the Project Tiger authorities. Normally, during winter, the shortage of food and tastes of sweeter water attracts the tiger to stray within adjoining villagers. But during 1980-81, a number (89 nos.) of pigs were set free within the buffer zone (892 sq. km.) (fringe area) of the tiger Reserve, which yielded a remarkable result and not a single report of tiger straying was obtained for the first time since inception of the reserve from 15th August 1980

to 31st May, 1981. A number of sweet water ponds have also been dug within the reserve area to quench the thirst of water for the tigers and thus man-eating propensity of man-eater is also reduced. Project authorities, are now well equipped with tranquilisation kit. During August/1980, a prompt tranquilisation of a straying tiger in Kumirmari viliage has been done.

Finally, Project authorities are granting a compensatory ex-gratia of Rs. 2,000/- per man to the lawful successor of the tiger victims, During the year 1980-81, compensation was granted in 56 nos. of cases including old pending cases.

The above measures have noticeably incalcated a feeling of assurance within the minds of the surrounding inhabitants of the Tiger Reserve. Project authorities are still finding out ways and means to earn more and more public goodwill to the benefit of the Project Tiger by partly meeting fuelwood demands from the restricted felling operation of buffer zone, as well as by increasing the rate of procurement of crude honey and bees was from the buffer-zone. More intensive patrolling in Reserve area has been organised. As a result encounters with dacoits who raid on helpless fisherman and honey collectors, are not infrequent. Recently during February, 1981 a gang of 16 dacoits were captured along with firearms. This has boosted up the public morale.

Keeping public consciousness for conservation in view of project objective to preserve and improve the tiger habitat, coupled with the goal of making it a tourist attraction is expected quite optimistically in years to come.

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Wing the Wildlife Wing

*KAILASH SANKHALA

Summary

The paper traces the history of development of Wildlife organisation. It refers to a strange situation which has developed after 1972 that the Chief Conservator of Forests who has no responsibility and powers under the Wildlife (Protection) Act, 1972 still holds the final word of authority—a situation never approved by the framers of the law. The result is that the Wildlife Wings are without flight feathers and the Chief Wildlife Wardens are only miscellaneous men.

Even in such a hopeless situation Wildlife Wings have shown spectacular results. Need is to remove the heavy weight riders to allow the wings a free flight. Problems faced by the personnel deployed for wildlife protection in discharging their duties have been summarised.

In the opinion of the author, forestry personnel who have the basic knowledge of wildlife habitat and an aptitude for outdoor life are still the best suited personnel and therefore, the Forest Department is the only source for recruitment to the Wildlife Wing for the present. To attract right type of personnel from the Forest Department to the Wildlife Department a proposal for providing one rank higher promotion has been suggested It provides opportunity of handpicking the personnel and to keep the department free of dead wood. The author makes it clear that it is premature to think of a separate wildlife service. But the need to establish a department of wildlife is rather urgent, for an independent leadership of the discipline. No structural model of infrastructure of the proposed Department is presented. This is to avoid confusion. Let each State develop its own structure according to its need.

Wildlife has always attracted attention of man all through human history, first for food and shelter, and fun and later fortune. He devised means to hunt and trap and operated freely. Still the low human population, slow means of transport and crude instruments of killing kept the slaughter within the ecological tolerance. As human population increased and man became more civilized, his capacity to kill wild animals and destroy their habitats also became efficient. This accelerated the destruction and started disturbing the natural balance.

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The first concern for care of the wildlife was shown by Ashoka the Great. It was as early as 300 B. C. The concept was lost during the turbulent period of Indian history except for a short period when the Mughals settled and reserved areas as 'Shahi Rakhat' and 'Shahi Shikargah'. A few Nawabs, Rajas and Maharajas also preserved wildlife for their pleasure. But these reserves and preserves were also lost with fading power of the Mughals and the Maharajas. Thereafter, a bounty system was introduced by the East India Company. Any body who brought a tail or a head of a wild antmal, specially of the big cats, was rewarded. This resulted in massacre of wild animals.

Real Concern

It was only in 1935 that real concern for preservation of the wild animals was once again shown. A few National Parks and Sanctuaries were established. Hunting and shooting rules were framed for protection of Wildlife and control on shooting wild animals. This was under the Indian Forest Act. The activity of control was confined only to the Reserved and the Protected forest areas. Naturally, those who managed the forests were the exclusive custodians of this wildlife resource. This is how the Forest Department came to be in charge of the wildlife.

Wildlife outside the forests in neglect

The wildlife outside the forest areas was nobody's concern except in a few princely states. It was only in 1951, when a special Wildlife Act was passed by various States of the Indian Union that wildlife outside the forest areas also got the protective umbrella of the law. But no agency was identified to service the Act. The Forest Departments assumed the charge without realising the implications. They built no special organisation to manage the resource, and depended on the erroneous concept of managing the wildlife in 'addition to their duties'. They failed. This failure plus attitudinal change in favour of forestry for accelerated fellings, conversion of good miscellaneous forests to plantation of single species, monoculture favouring sal and teak, felling of the fragile areas like steep slopes in hills as well as the areas under heavy pressure of cattle including sheep, goat and camel made impossible to be regenerated due to biotic factors, and the foresters concern 'to squeeze the last rupee out of the forests' gave rise to bitter criticism of the Forest Depa:tments. In almost every meeting of the Indian Board for Wildlife the subject of alternate organisation for wildlife conservation came up for discussion. The foresters protested, defended, resisted and resented each such move. They were still suffering from the erroneous notion that their multipurpose man—the Ranger—was all competent. The claims and counter claims created a confusion.

Expert Committee Report

To study the problem in depth, the Government of India appointed an Expert Committee in 1970. (Anon 1970). The Committee recommended that there shuld be an effective wildlife

legislation. It suggested a total ban on all hunting throughout India for a period of three years. It recommended creation of more sanctuaries to cover atleast 4% of the land area of India and preservation of National Park and Sanctuaries on the concept of total environmental preservation. It also suggested creation of a separate Wildlife Department in each State (Page 24, IX Report 1970). More effective legislation has been enacted since then. It is the Wildlife (Protection) Act. 1972. Endangered animals have been listed and totally protected by inclusion in the Schedule I of the Wildlife (Protection) Act. Many States have introduced total ban on hunting to rehabilitate wildlife in the depleted areas. The Expert Committee thus succeeded in introducing the present philosophy of wildlife management in the country.

But the question of a separate wildlife organisation continues to be debated without any solution. The issue of creation of a department got confused with creation of a Service. Many took full advantage of the confusion by not allowing the wildlife discipline to come up with its own leadership. Finally, but most reluctantly, Wildlife Wing was allowed to be created with variety of alternatives and incompatible infrastructures. But all of them have proved to be hopeless compromises which have resulted in the present sad state of affairs of the Wing having no wings.

New challenges

Let us have a brief of the new challenges of wildlife management. None of these existed a decade ago in the magnitude necessitated today.

(i) *Protection of wildlife—Implementation of the Wildlife (Protection) Act. 1972 and the rules framed thereunder*

The Act extends over the entire State Forests, non-forest areas, desert areas and even private lands. It controls trade in wildlife. The protection of wildlife from decimation by sly poachers and apathetic costodians in itself is a field which demands whole time involvement.

(ii) *Management of Sanctuaries and National Parks*

Very many more wildlife Sanctuaries and National Parks, reserves, closed areas have been established. Some of them hove attained international fame. They are being managed on the sound principles of ecology. The entire area including forest and wildlife habitat have to be managed as an integrated unit.

Quit a few of them are definite destinations of all tourists and involve management of visitors and need development of the best public relations and an excellent public educational system is apparently a pre-requisite for managers of this valuable resource.

(iii) *Special ecological projects*

Administration of special projects like the Tiger Project and Crocodile Project are the new challenges which need sound knowledge of the habits and habitat of the species for correct management decisions.

(iv) *Administration of special areas*

Special areas where protection has to be given to species like the Great Indian Bustard, Chinkara, Black buck, etc. These are the new creations of last 3 years and are designated as closed areas.

(v) *Monitoring the habitat*

Habitats which are deteriorating are to be attended to immediately by planting, soil conservation and other means. Even the planting needs intelligent handling to look natural and not man-made.

(vi) *Wildlife Research*

The management is based on scientific research findings. Monitoring of population dynamics of wild animals and birds through periodic census of wild animals, behavioural studies and interactions are important aspect of the research.

Participation in constantly increasing number of technical conferences and presentation of scientific papers need original field work.

(vii) *Zoological Gardens (Deer Parks)*

Management including designing of the modern enclosures and upkeep of wild animals. This is a complicated subject with multination kitchen, hostel and hospital management. A number of Deer Parks are also being set up.

(viii) *Wildlife Board and its activities*

Some new functions like co-ordination of Honorary Wildlife Wardens, and intimate public contacts to ensure people's participation have increased manifolds. Since public awareness has increased the Boards are also far more active.

(ix) *Wildlife Publicity and Public Relations*

Wildlife publicity through exhibition, hand-outs, check lists, booklets, lectures, radio talks, lectures in institutions and participation in public meetings for preservation of wildlife are important activities. The exhibition, "Wildlife Conservation" held at Delhi is one example. Never before in the history of wildlife movement has such an exhibition been held. It was visited by the Prime Minister. All this needs a specialised aptitude entirely different from traditional forestry.

Before 1972, the wildlife activity of the Forest Department was to issue shooting licences, even without knowing the stock and its regeneration potential—a fundamental principle of management of a renewable ressurce. There was no control on trade except on few items imposed by the Government of India. And in any case the forester's jurisdiction was only over 22% (forests) of the country's areas. The new responsibilities explained above are the new challenges for a wildlife manager, five times greater in scope and with 100% more functions.

Responsibilities of Wildlife Wing

It is a fact that the responsibilities of the presonnel of the Wildlife Wing are greater and duties are harder as compared to those of the personnel of the Forestry Wing. A Wildlife Officer or the Wildlife Guard has to be always on his toes day and night. Where their colleauges face men with axes, the Wildlife Guards face firing squads of poachers. In Sanctuaries the management is intensive, where they have to manage knowledgeable visitors and control and apprehend deadly poachers. Their responsibilities of managing large concentration of wildlife populations which get sick, many a time of unknown diseases, also mounts tension in their minds. In such situations their stresses and strains are much similar to those of the Zoo Directors where case of his captive wild animals is very much his personal business, every one of the Wildlife Organisation is involved. Even the hours of working are different and difficult.

Care of wildlife habitat demands more time and total involvement of the manager and he has to constantly keep a vigil. Grazing, wild growth of weeds and destruction of habitat mean far more to wildlife than to a forester. These factors, if remain unattended even for a short time, are reflected much faster in the habitat and the health and population of the animals. A slight neglect of allowing the growth of water-hyacinth would have ruined the world's best Bird Sanctuary of Bharatpur. It was for the time that the obnoxious weed was totally eradicated in 1978-79 without waiting for the formalities of sanction and budget. It was on war footing. Similarly, growth of Xenthium in Ranthambhor was controlled in time. It was reducing the grazing potential of the Tiger Reserve. A step in the forests of wildlife sanctuaries managed by the Wildlife Wing and in the forests managed by the Forestry Wing will clearly show the intensity of care and deep concern of the manager. This was recently expressed by a team of World Bank Officers and Engineers of the Water and Power Commission of the Government of India while visiting 'even' Sariska forests which are still overgrazed. They observed a 'spectacular change'. If they visit Kanha , Ranthambhor and other Tiger Reserves they would be stunned.

Wildlife pleases no one except animals who cannot express their gratitude. The rich and influential lobbies are against any stands against hunting. Why should the Wildlife staff take these responsibilities and remain in tension for no legitimate gains? This question

has remained unanswered. And this single factor is responsible for making the posting in Wildlife Wing, a posting of punishment and creating frustration in the organisation. There are still many factors which have paralysed the Wing.

Administrative bottle-necks

Detailed account of defective functioning and inadequacies of the Wing is not the purpose of the paper. But let us study some general management problems which are paralysing the Wildlife administration. The first one is the choice of personnel. The Forest Departments with their dominant position have by and large pushed unwanted and unwilling personnel to the Wing either to punish them or to get rid of them. They want the Wing to run a cleaning and corrective service for the Forest Department at the cost of its own time. Some came to the Wing as passing events using the wildlife posts as stepping stones for their promotions. This is true not only of the lower staff but also of senior officers. In one State, Conservators posted in the Wing left it at the first opportunity, within less than two years. They had come on their first promotion. Was it not opportunism ? There are very few posts but even they remain vacant because the Chief Wildlife Warden has no power to fill them and the Chief Conservator of Forests is too busy to spare time and too reluctant to spare men, specially the suitable ones. The list of difficulties is long, grievances are innumberable and situations are frustrating. This is in spite of the Prime Minister's directive— "Officers with the right aptitude should be posted in reserved forests and Sanctuaries." She has even suggested identification of "a special corps of such officers, for duties relating to wildlife and forest and environment conservation."

Defective Organisation

The Wildlife Wings are said to be headed by a Chief Wildlife Warden, sometimes of the rank of Additional Chief Conservator of Forests (in few States) or Conservator of Forests (in rest of the States). They are assisted by a Conservator/Deputy Conservator. Some Sanctuaries are headed by special staff. The special areas are under Deputy Conservator of Forests and even Conservators of Forests (Tiger Reserve). A few of these Chief Wildlife Wardens are functional and they have their exclusive staff but their infrastructure is so weak that they are hardely effective. In many cases the executive link of the Deputy Conservator is either missing or hopelessly inadequate. In one State the Chief Wildlife Warden has no executive functionary and his Wildlife Wardens or Assistant Conservators (WL), Wildlife Rangers and Zoo Supervisors are under the direct control of the Divisional Forest Officers (executive functionary). But the Divisional Forest Officers are not responsible to the Chief Wildlife Warden. The result is that the line of control is broken and there is no meaningful administrative control of the Chief Wildlife Warden over the Sanctuaries, Flying Squads and Zoos.

The organisation of the Wing is defective. In some States, the Chief Wildlife Warden are only in name, more to meet the pressure of the Government of India's letters and communi-

cations. These Chief Wildlife Wardens are miscellaneous men in the office of the Chief Conservator of Forests.

Sometimes selection of the Chief Wildlife Warden is for convenience. As per Shri S. P. Shahi's statement in the last meeting of the Indian Board for Wildlife, one officer who faced a departmental enquiry and his three increments were stopped as a punishment, was posted as a Chief Wildlife Warden. Similarly, in another State an officer facing a departmental enquiry was chosen as the Chief Wildlife Warden. Some were posted on compenssionate grounds as they could not climb office stairs due to reasons of health. What inspiring personalities these Chief Wildlife Wardens can have when wildlife leadership needs enthusiasm, zeal, dedication and high degree of integrity.

Wing without Wings

Actually many States developed the Wings but provided no feathers even for display. They appointed Chief Wildlife Wardens but pinioned their flight feathers and made them defunct by an administrative clause, 'under the Chief Conservator of Forests'. This superior authority was misused and one Chief Conservator of Forests ordered that the Chief Wildlife Warden will have no administrative jurisdiction and control over sanctuaries. The 'illegal' order was complied because nobody subordinate to the Chief Conservator could dark risk career to express his opinion. The result was that there was no one to voice the voice of the voiceless.

An Administrative Fiat

How strange is the administrative situation that the Chief Conservator of Forests holds the final word without sharing any responsibility under the Wildlife (Protection) Act, 1972. According to the law, the authority to be held responsible in all matters of wildlife is the Chief Wildlife Warden and nobody else. As per provisions of the Wildlife (Protection) Act, 1972 there is no institution of a Chief Conservator of Forests.

Even the legal jurisdiction of the two officers differ. The constitutional functions of the Chief Conservator of Forests prescribed in the Forest Act are limited to Reserved and Protected Forest duly notified under the Act. The forest areas, in most of States, are less than 20% of the State's area. The Wildlife Protection Act extends all over the State and so is the jurisdiction of the Chief Wildlife Warden. It is difficult to understand how can the Chief Wildlife Warden function under the Chief Conservator of Forest who has noposition over 80% of the territorial area. In what capacity can he function ? Certainly not as a Chief Conservator nor a super Chief Wildlife Warden. There is no such provision in any law.

It is erronous to think that wildlife exists only in the forest areas. There are large areas with wildlife outside the forests. The fact is that there is no territorial, legal, technical,

administrative or moral relevance of keeping the Wing under the Chief Conservator of Forests and in authorising him by an administrative fiat to contral, supervise and comment on the working of the Wildlife Wing and its personnel.

Minimum co-operation

When the Wing was created it was hoped that the Wing will gain by the active co-operation of the Forestry Wing. The hopes have been belied. The fact is that the Department has never been comfortable with the Wildlife Wing. It continues to treat it as 'an unwanted child'. The desire is being expressed to revert to the stage of the colonial era when the Chief Conservator was all powerful and the boss of the forests and hunting was the pastime of his family and friends. The conditions also confirm the fears of the Prime Minister —"Forest Department continues to treat wildlife as a peripheral and unimportant matter. If this attitude of indifference persists, attempts of conservation will not succeed". The wildlife organisation is positively treated with apathy and subordinated to the stage of suppression. The conservation has suffered.

Prime Minister's concern

"I have been reciving a great deal of information from within the country and abroad about the ravages to which our forests and wildlife has been subjected. Poachers and smugglers of animal skins, etc. have not been far behind. Together, they have chipped away steadily at many of our Sanctuaries and forest reserves. Much of the good work done in setting up wildlife sanctuaries has been nullified by their activities. It is a matter of introspection as to how far Governments and their machinery have acquiesced, if they have not aided and abetted, the whole process of steady destruction". This is wholly correct. We have just to look at the forests nearest to us. In many cases the loss is total. Many of our sanctuaries have deteriorated and we might have to de-notify them. "We cannot allow this sad state of affairs to continue and must bring about a total reversal of these trends", is the Prime Minister's concern and this is the only hope for wildlife's survival. We have to act and act fast to regroup ourselvas for effective wildlife conservation.

Wildlife Department

The wildlife movement would have progrssed much faster if the recommendation of the Expert Committee (1970) for creation of a separate organisation had been accepted. The ten years lost in this trial has retrograded the movement atleast by half a century. The experience of the Wildlife Wing under the Forest Department has been bitter and expensive. The experiment has failed.

The solution now lies in giving the wildlife organisatien freedom to develop its own discipline and build its leadership. This needs a department of Wildlife independent of the Forest Department though under the same administrative Secretary for better co-ordination. There is

enough infrastructure existing even today to carve out an independent unit even by rearrangements. The areas of intensive management are already identified and separated from the Forest Departments.

The Television organisation started ten years ago. It was part of All India Radio but within few years need was felt to separate it as a department. Nobody protested, resented and resisted the separation. Nobody is sorry for the decision. Television has progressed. The States' organisations of Tourism as a separate Department is another example of a small Department which is making progress because it has its own leadership responsible to the Government and not to any other discipline. The post is generally held by an officer of All India Service only in the Senior Scale. The appropriate example is of the Anti-Corruption Department. It is manned by Police Officers but is not under the Police Department. It is a separate Department under Anti-Corruption Act.

Imagine where were the Irrigation Department, Public Health Department and Town Planning Department. It was all one Public Works Department. Size is no criteria for a discipline to be a Department.

It appears the decision of keeping the wildlife under the Chief Conservator of Forests was made when Wildlife Wing did not exist, the Wildlife Protection Act, 1972 was not in force and when individuals committed to the cause of Wildlife and trained in this science were hardly available. Thanks to the Project Tiger and similar other programmes, enough expertize and committed personnel are now available. There is no risk in organising a separate Department though time is surely not ripe for establishing a Wildlife Service. It is relevant to quote that even in case of the National Park Service of U.S A. the Service was established only in 1916 though the first National Park (Yellow Stone) was established in 1872. The issue should not be allowed to be further confused by harping on creation of a Wildlife Service. The challenge of wildlife (which include flora and fauna in totality) conservation will be met by a well established department to start with.

No structural model for wildlife organisation can be given because situations vary from State to State. For example, Haryana hardly has any forest area, Meghalaya has over 50% of the land under the forests and rich wildlife exists in extensive non-forest area in Rajasthan. Each State should be able to make its own model of the Department infrastructure. The paper explains the basic philosophy of making Wildlife Organisation a Department under the Government and not under any other discipline. There is no legal provision for making a deviation. The correction is necessary and it is urgent. There should be no hypothetical fears of its failing. Flights develop by trial. It deserves a fair trial.

Basic source of personnel

How can the Wing or the new Department be made attractive and effective ? First we should be clear about one basic fact that for the present the only source of getting right type of wildlife personnel is still the Forest Department. This is the only Department which trains personnel to live in far interior of forests and to stay under the sun with minimum shelter. They are also the only ones who know the habitat well. Planting of vegetation is their basic job which is needed for improvement of habitat. Their skill is also needed for construction of roads and buildings, waterholes and their proficiency in riding, including camel riding, and of course walking miles, are the needed qualities of a wildlife manager. The fact that Forest Officer is the best wildlife manager by training and experience has never been proved wrong, whether it was the National Wildlife Programme of the Project Tiger or implementation of the Wildlife (Protection) Act. It has, therefore, been rightly decided to draw personnel only from the Forest Department to start with.

But it must also be clearly understood that every forester is not suitable for wildlife work. Extra zeal, courage, dedication, sense of responsibility and high degree of integrity are other essential ingradients to be a suitable wildlifer. It needs a life style to develop love for nature and wild animals and one has to get committed to the philosophy of conservation. It is always hard to find such individuals who can live committed to a cause with minimum needs. Probably, this is why it is suggested that dedicated individuals should be hand-picked and given incentive to work for wildlife. This is the only solution.

Hand-picking personnel

Now the question is how to hand-pick the best personnel for managing a living landscape. The Government of India's directive about giving incentive should work. The feeling is that special pay or hard duty allowance is no answer. This has not worked. If we take a personnel of the Forestry Wing to the Wildlife Wing on one stage higher, i.e. forester as Ranger Gr. I, Ranger Gr. I as Assistant Conservator of Forests and Assistant Conservator of Forests as Deputy Conservator of Forests, many good personnel of the Forestry Wing will be willing to come. This will give the Wing an opportunity to select and an incentive to the selected one. He will retain the promotion till he remains in the Wing. If he reverts to the parent cadre, he does so in his original position. Initially, he will come for a period of 3-5 years and thereafter, he will and we will have the choice to revert or retain. Those who will revert will leave the Wing with the experience of wildlife management, which will be helpful in developing an attitudinal change of the Forestry Wing towards wildlife. Those who continue to remain in Wildlife Wing will become the expert managers and researchers—assets of the organisation.

For special posts of Field Directors of national parks and for management of special wildlife areas, we should depend on selected IFS officers and other dedicated personnel of undisputed repute. If their career is secured, they will love to come to Wildlife and make original contribution. Here the suggestion is that the IFS officers in senior scale with minimum of 5 years of service (in senior scale) should be selected to the Wildlife Wing on the above posts. They should be given the selection scale of the IFS in advance of their getting in the normal course to act as an incentive to come to Wildlife Wing. An enhanced status and increased emoluments should allure the best individuals to the Wildlife Wing. If they revert, they do so in their original grade. Once initiated and properly guided these officers will derive job satisfaction and they would be wildlifers for rest of their life time. Even at present, young IFS officers are anxious to join the Wing for ever provided their career opportunities are guaranteed. Even if some one reverts due to some reasons beyond his control, he will help in managing the wildlife of the forest areas they are posted and also help in attitudinal change of the Forestry Wing.

In brief the proposal has the following merits and advantages—

(i) *Ensuring willing workers for Wildlife*

It ensures selection of only those individuals who are willing to work for Wildlife Conservation. They do not come on a routine transfer for convenience or punishment.

(ii) *Security to continue*

Those posted in the Wildlife Wing will be free from the fear complex of being withdrawn to the Forestry Wing without their consent.

(iii) *Incentive to continue in Wildlife Wing*

One stage higher promotion will act as incentive since it will give them higher status and enhanced emoluments.

(iv) *Continuity ensured*

If the personnel selected in Wildlife Wing want to continue in the Wildlife Wing for longer time than 5 years, they would be free to do so since they would not be losing any first stage promotion of their parent cadre. They had already got it when they joined the Wing. This will ensure continuity of the personnel for longer period.

(v) *Wider choice for selection*

This will help 'hand-picking' because there would always be more individuals available than the Wing needs.

(vi) *Opportunity to revoke decision in time*

In case some one discovers that one has made a wrong choice by coming to the

Wildlife Wing, he will have the opportunity to revoke his decision and revert. He will have a cadre to fall back. He does not become a dead wood in the Wildlife organisation nor is he thrown on the road.

(vii) *Help in attitudinal change*

Those who will leave the Wildlife Wing after 5 years will help in developing an attitudinal change of the Forestry Wing for wildlife. Also, they will help to organise and manage the wildlife found in forest area where they are posted.

(viii) *Helps to guard against the opportunities*

The system of selection will help to guard against promotion oriented officers coming to the Wing only for the sake of promotion and mark their time to return when convenient posting is available. The posts in Wildlife Wing will not be open to every one of the Forestry Wing on the basis of seniority. This will build high moral of the members of the Wing and ensure promotion of the right type of officers whenever there is any vacancy in the Wildlife Wing.

(ix) *Fixed responsibility*

Once an independent Wildlife organisation is established there would be no confusion of responsibility. Any wildlife matter, any where, would be the responsibitity of the organisation. At present, anything good is because of Wildlife Wing is under the Forestry Department, and any thing that goes wrong, is because of creation of the Wildlife Wing. Organised discipline, dedicated personnel, continued and well planned career and fixed responsibilities will help conservation of the country's natural resource of wildlife which are second to none in the world.

(x) And above all, the proposal ensures inheritance of the true characters of conservation forester and the fine traditions of the historic Forest Service and the Forest Department of India.

(xi) It proposes to be another conservation department like the forest conservation department utilizing the set procedures, rules, regulations and financial system of the parent department.

(xii) It does not propose a split. It suggests methods of providing flight feathers to the Wildlife Wing to be on its own wings for a meaningful management of the wildlife resource of the country.

For some States the procedure is nothing new. Similar arrangement has been approved in the Police Department and the Anti-corruption Department of the State of Rajasthan, probably to overcome a similar problem. A set of rules pertaining to the system are available.

They can be modified to suit the Wildlife organisation, specially to cover the All-India Forest Service Officers and its own criteria of selection to ensure hand picking of men and officers.

Benefit of Wildlife

While quoting the relationship of the Wildlife and the Forestry Wing, tne author has no intention of passing aspersions on the forest officers as many of them have been actively helping in wildlife protection and management. This proposal is purely for the benefit of the wildlife of the country. It is hoped that it will be appreciated and taken in the spirit in which it has been made. The object is that the Wildlife should gain. But the author takes the full responsibility of establishing to the hilt, every statement made here.

The last chance

We have to save the remaining wildlife and wild-lands which are still second to none in the world, in their variety and magnificance.

Should we still think of functioning 'in addition to our duties', allow no opportunity to the wildlife organisation to function, create boggy of expenditure and lack of man-power and continue to confuse that the wildlife is safe only under the Forest Department ? A heart searching is necessary. Regeneration of a renewable resource is ensential for ensuring its perpetuity. Let not history record that the foresters ignored this cardinal principle of forestry, became wolf trees and deprived its wildlife branch to develop its own roots to be an independent tree.

"I should like you to ensure that departmental apathy and resistance to the effective functioning of Wildlife Wing are overcome. Cadre management must be adjusted to reflect the new priorities", is the directive of the Prime Minister.

Take the last chance !

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कोकरे बेलूर के पीहर में पक्षी-परिवार का बसेरा

लेखक : एस० पी० शाही
भूतपूर्व मुख्य वन संरक्षक (बिहार)

इससे कौन इंकार कर सकता है कि विज्ञान ने आधुनिक सभ्यता को गतिशील बनाया है। नये आयाम और नयी दिशाएँ मिली हैं। लेकिन साथ ही यह भी सत्य है वैज्ञानिक उन्नति और औद्योगिक विकास-विस्तार ने हमारे आधुनिक जीवन पर प्रतिकूल प्रभाव छोड़े हैं। निर्ममता से वनों का नाश हुआ है और सबसे अधिक, प्रकृति की अनमोल देन वन्य-जन्तुओं और पक्षियों को बड़े मोल चुकाने पड़े हैं।

वन्य-जन्तुओं और पक्षियों के नाश के लिये आदमी प्रत्यक्ष जिम्मेवार रहा है, यह सत्य है। आदमी इनकी ओर से उत्तरोत्तर उदासीन मात्र ही नहीं होता गया, बल्कि उसका व्यवहार बड़ा ही कठोर और निर्मम रहा इनके साथ। यही कारण है कि धीरे-धीरे पशु-पक्षियों ने मनुष्य को अपना प्रबल शत्रु समझ लिया और उसकी छाया-मात्र से दूर भागने लगे।

लेकिन, विनाश और सृजन का क्रम साथ-साथ चलता है और यही सृष्टि का नियम रहा है। अतः अपने विशाल देश में, प्रकृति की गोद में फैले निर्जनों और वनों में ऐसे भी स्थल आज भी विद्यमान हैं, जहाँ वन्य-जीव निर्भीक विचरता है—पक्षी बेफिक्र अपनी दिनचर्या में मस्त रहते हैं। और ऐसे वातावरण को देखकर प्राचीन युग की बातों की ओर मन लौट पड़ता है, जब मनुष्य और पशु-पक्षी समान रूप से साथ-साथ रहते हुये, निर्भीकता के साथ-साथ जीवन बिताते हैं।

इन पंक्तियों को लिखते समय मैसूर राज्य के चन्नपट्टन तहसील के उस गाँव की याद आती है। या यों कहें कि वर्षों पहले से उस गाँव के विषय में पढ़ सुनकर उसे देखने की जो अभिलाषा उत्तरोत्तर बलवती होती रही थी, मुझे बरबस खींचकर वहाँ ले गई। और अवसर मिलते ही, १३ अप्रैल १९८१ को मैं वहाँ के लिये चल पड़ा। हाल ही में अपने मित्र श्री सक्सेना का लेख चितल के June 1980 के अंक में पढ़ा था। कोकरे बेलूर है उस गाँव का नाम। बंगलोर-मैसूर उच्च पथ पर, मदुरा के पास जो सड़क कोयम्बतूर को जाती है, उसी पर चन्नपट्टन तहसील में कोई १२ किलोमीटर पर। साधारण सा गाँव, ग्राम गाँवों की तरह। और जैसा ग्राम तौर पर गाँवों में पाया जाता है—अनेकों प्रकार के वृक्षों से भरा पूरा।

दक्षिण भारत में इमली बड़ा लोकप्रिय है और नाना प्रकार से उसका उपयोग खाने के रूप में किया जाता है। लेकिन यही इमली, पीपल और वट-वृक्षों तथा बबूल के पेड़ोंकी अधिकता इस गाँव के साथ एक खासियत और आकर्षण बन गई है। और यही आकर्षण मेरी यात्रा का मूल कारण था।

यों तो पेड़ असंख्य है यहाँ, लेकिन कुल ३२ पेड़ यहाँ ऐसे हैं, जो हजारों-हजार प्रवासी पक्षियों के नियमित निश्चित निवास बन गये हैं। सदियों से यह सिलसिला चलता आ रहा है। इमली, वट, पीपल तथा बबूल के इन ३२ चने वृक्षों पर पखेरुओं की दो जातियाँ एक निश्चित समय पर पहुँच जाती हैं, घोसलों का निर्माण करती हैं, अंडे देती हैं और जब उनके बच्चे उड़ने लायक हो जाते हैं, उन्हे लेकर दूसरे किसी स्थान के लिये उड़ जाती हैं।

कोकरे बेलूर के अधिकांश निवासी वोकालिगा (निम्न वर्ग) हैं। मुख्य रूप से इनका पेशा खेती है। अपनी स्वयं की खेती अथवा दूसरों के यहाँ खेत मजदूरी। विशेषता यह, कि पूरा का पूरा गाँव माँसाहारी है, लेकिन आश्चर्य की बात है कि ठीक दरवाजे के समीप खड़े पेड़ों पर निवास कर रहे इन प्रवासी पक्षियों को न तो कोई अपना आहार बनाता है और न कभी छेड़ता है।

कोकरे बेलूर गाँव में डेरा डालने वाले दो जातियों के पक्षी-समूह में एक तो है एक प्रकार का जांघिल (पेंटेड स्टॉर्क) और दूसरा होता है कुरेर (ग्रे पेलिकेन)। स्वभाव के अनुसार ये पक्षी उन्हीं स्थानों में अपने डेरे बनाते

है जहाँ तालाब हो अथवा पानी किसी न किसी रूप में उपलब्ध हो। ऐसा इसलिये कि तालाबों में जीने वाली मछलियाँ तथा अन्य छोटे-मोटे जीव इनके आहार होते हैं, जो सहज ढंग से उपलब्ध हो जाते हैं। और आहार के बिना आवास का कोई सुख नहीं होता। यहाँ भी एक विलक्षण बात और कि ये पक्षी अपने घोंसले उन्हीं ऊँचे पेड़ों पर बनाते हैं जो चारों ओर से पानी के बीच खड़े हों। अपनी तथा बच्चों की सुरक्षा का कड़ा प्रबन्ध। पानी के बीच खड़े पेड़ों पर टिकने के पीछे यही सुरक्षा की भावना होती है ताकि साँप अथवा गोह आदि रेंगने वाले जीव इनके अंडों-बच्चों को हानि न पहुँचायें।

मैं मध्य अप्रेल में यहाँ पहुँचा था। बड़ा आश्चर्य हुआ इस बात से कि यहाँ तालाब या पानी के छोटे-मोटे गड्ढे भी मुझे दिखाई नहीं पड़े। खेतों में कोई फसल भी नहीं थी। कोकरे बेलूर विशुद्ध रूप से यहाँ के निवासियों का गाँव है। किसी सरकारी भवन अथवा सम्पत्ति का यहाँ नामोनिशान नहीं। हाँ, वन-विभाग की ओर से एक कर्मचारी अवश्य नियुक्त है, जो घोंसले की गिनती करता है, कब ये पक्षीआते हैं—अडे देते हैं, कितने बच्चे होते हैं, इन सारी बातों का ब्योरा एकत्र करता है।

जाँघिल पक्षियों का समूह जनवरी से १५ फरवरी के बीच, सैकड़ों के झुँड में अज्ञात स्थान से पहुँचा है और इस गाँव के उन्हीं चुने ३२ पेड़ों पर अपने घोंसले बनाना शुरु कर देता है। आकर्षक और मनोहर जाँघिल बरबस लोगों का ध्यान खीच लेता है। इसकी लम्बी चोंच पीले रंग की होती है और पंखों का निचला रक्ताभ भाग अत्यंत सुहावना दीखता है। पंखो का ऊपरी भाग बर्फ की तरह धवल तथा निचला भाग हल्की भूरी धारियाँ लिये हुये, पंखों का अंतिम छोर गुलाबी रंग का होता है। नर तथा मादा जांघिल प्रकृति द्वारा प्रदत्त एक ही परिधान में आवेष्ठित होते हैं—दोनों में जरा भी अंतर नहीं दीखता।

अंडे से निकला नवजात जाँघिल धुनी हुई रुई के गुच्छे की तरह दीखता है—नन्ही-काली चोंच लिये। आज तक यह रहस्य ही बना हुआ है कि ये पक्षी कहाँ से आते हैं पारिवारिक अवस्था के दिनों में और फिर बच्चों की सौगात लेकर किस स्थान के लिये उड़ चलते हैं। गाँव आकर इनका पहला काम होता है घोंसलों का निर्माण और १५ दिनों में तैयारी पूरी। जैसे फौज की टुकड़ी आनन फानन में कहीं भी अपने खेमे खड़ी कर लेती है। फिर शुरु होता है अंडे देने का क्रम। कोई तीन सप्ताह में अंडों से बच्चे निकल आते हैं और तब चलता है लालन-पालन और आहार-व्यवहार का क्रम।

जब मैं पहुँचा था, तो एक माह मे लेकर अभी-अभी अंडे तोड़कर बाहर निकले जांघिलों के बच्चे पेड़ों की टहनियों पर फुदक रहे थे, आसमान की ओर सिर उठाये इमली के ऊँचे पेड़ों की फुनगियों पर मानों नवजात पखेरुओं की खेती उग आई हो! यही हालत कुरेरों की भी थी, लेकिन उनकी संख्या जांघिलों से कम थी। कुरेर जांघिलों से लगभग एक माह पूर्व यहाँ पहुँचते हैं। इनका रंग भूरा होता है और चोंच जाँघिलों की अपेक्षा लम्बी होती है।

लगभग ७०० घोंसले पेडों पर टँगे हुए थे। माता-पिता सहित कुल पक्षियों की संख्या १४ सौ थी। नव-जातों की संख्या १८ सौ ३४ थी। इनमें कुरेरों की संख्या ३ सौ मात्र थी। इमली के पेड़ों पर जिनकी डालें एक-दूसरे से गले मिलती अत्यंत सघन होती हैं, जांघिल अधिक संख्या में थे। कुरेर बच्चों सहित भरापूरा परिवार लिये पीपल, वट और बबूल के वृक्षों पर छाये हुये थे।

इन पक्षियों के तौर तरीके देखकर मैं आश्चर्यचकित था। अनेक प्रश्न मन में उठ रहै थे। मैं बड़े जोड़ तोड़ के साथ प्रश्नों में उलझ गया था। तभी हठात, एक २५ वर्षीय युवक दीख गया। लिंगे गौडा था उसका नाम। मैंने छूटते ही उससे प्रश्न किया—क्यों भाई, इतने सारे पक्षी गाँव के पेड़ों पर, ठीक दरवाजे से सटे हुये भी, गाँव वाले इन्हें मारते-छेड़ते नहीं?

मेरे प्रश्न से युवक के चेहरे पर न तो कोई हैरानी थी और नाहि कोई आश्चर्य का भाव। उसने बड़े सहज ढंग से उत्तर दिया—"ये पखेरू हमारे गाँव की बेटियाँ हैं जो प्रसव के दिनों में सपरिवार अपने मायके आ जाती हैं।

हमारी बीच निवास करती हैं—खुशी-खुशी रहते हैं—वंश बढ़ाते हैं। और जब इनके बच्चे बड़े हो जाते हैं, ये हँसी-खुशी सपरिवार फिर ससुराल चले जाते हैं। अब भला, इन्हें छेड़ने और हानि पहुँचाने की बात कोई सोच भी सकता है! बेटी-दामाद और नाती-नातिनें तो प्यार और आदर के हकदार हुआ करते हैं—तिरस्कार और त्रास के नहीं! इनकी रक्षा तो हमारा कर्त्तव्य है।" युवक का सहज ढंग का उत्तर मुझे स्तम्भित ही नहीं कर गया बल्कि मेरे अंतर्मन को छू गया। काश! दूसरे लोग भी कोकरे बेलूर गाँववासियों की भाँति, पक्षियों के साथ घर-परिवार का सा भाव रख पाते!

सामान्य तौर पर, अन्य स्थानों में, इन पक्षियों का घोंसला बनाने और अंडे देने का मौसम नहीं होता। लेकिन इन दोनों जाति के पक्षियों का इस समय इस गाँव में आना, गाँव वालों के साथ रहना तथा अंडे आदि देना निश्चय ही आश्चर्य का विषय है।

उत्तरी भारत के (जहाँ इनकी संख्या अधिक होती है) अन्य स्थानों में ये पक्षी आम तौर से दक्षिण-पश्चिम मानसून आरम्भ होने के कुछ ही दिन पहले घोंसला बनाते हैं तथा प्रजनन और बच्चों के लालन-पालन जुलाई से अक्तूबर के बीच शुरू करते हैं।

लेकिन बड़ी विलक्षण बात है कि कोकरे बेलूर गाँव में सूखे समय ही ये पक्षी पहुँच कर डेरा डालते है—अंडे देते हैं और बच्चों के उड़ने में समर्थ होने तक उनका लालन पालन करते रहते हैं। आखिर ऐसा क्यों? जब कि अन्य स्थानों में इन कार्यों के लिये बरसात का समय ही अनुकूल हुआ करता है। दूसरी आश्चर्य पैदा करने वाली बात यह कि कोकरे बेलूर के पक्षियों की कॉलोनी से, सबसे निकट पानी के स्रोत वाली सिमसा नदी कोई १५ किलोमीटर दूर पड़ती है। इस बीच पानी का कोई दूसरा स्रोत एकदम नही है।

ऐसा लगता है, कोकरे बेलूर से दूर कहीं, कोई दूसरा जल क्षेत्र अवश्य होगा जहाँ ये पक्षी माता-पिता पारी-पारी जाकर कीड़े मकोड़ों और मछलियों का आहार करते होंगे तथा बच्चों के लिये आहार लेकर लौटते होंगे। बच्चों को ये अकेला कभी नहीं छोड़ते, और माँ-बाप में से एक ही किसी भी कारण से, बच्चों के पास से हटता है।

लगभग दो वर्ष पूर्व, जब मैं जगत विख्यात भरतपुर पक्षी विहार पहुँचा था—तब जाँघिलों के बच्चे ३ माह के हो चुके थे—अतः निश्चय ही ये सितम्बर में जन्मे होंगे। भरतपुर पक्षी विहार में कोई दो से तीन हजार जांघिल के जोड़े अंडे देते हैं तथा बच्चे पैदा करते हैं।

पक्षी विशेषज्ञ डा० सलीमली ने जिनकी गणना संसार के इने गिने पक्षी विशेषज्ञों में होती है, लिखा है कि जो जाँघिल भरतपुर आते हैं तथा जिनकी संख्या ४ से ६ हजार के बीच होती है, उन्हें प्रतिदिन आहार के लिये लगभग ३० टन मछलियों की आवश्यकता पड़ती है।

यहाँ कोकरे बेलूर आनेवाले पक्षियों की संख्या (जाँघिलों) भरतपुर की तुलना में कम है—फिर भी इन्हें किस अनुपात में आहारों की आवश्यकता पड़ती होगी इसका अंदाजा भरतपुर के आँकड़े को दृष्टि में रखकर लगाया जा सकता है। आखिर इतने अनुपात में कोकरे बेलूर के जाँघिल पक्षी, अपना तथा बच्चों के आहार कैसे और किन स्रोतों से जुटा पाते होंगे, इसपर भी अभी प्रश्न चिह्न लगा हुआ है।

जब मैं कोकरे बेलूर से बंगलोर के लिये रवाना होने लगा तो लोगों को कहते सुना—"इस स्थानों को पर्यटकों के लिये दर्शनीय स्थान बना दिया जाना चाहिये।" लेकिन, यदि मुझसे पूछा जाय, तो मेरी अंतरात्मा यही कहेगी—कोकरे बेलूर तथा वहाँ प्रवास के लिये आने वाले निरीह और स्वच्छंन्द पक्षी-परिवार को कदापि नहीं छेड़ा जाय।

कारण, पशु-पक्षियों के साथ मनुष्य किस प्रकार अपने को आत्मीय एवं पारिवारिक रूप से जोड़ लेता है, कोकरे बेलूर इसका जीता जागता उदाहरण है हमारे देश में।

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Last Days of Khairi

"What wretched luck !"

"Naked came I out of my mother's womb, and nacked shall I return thither: the Lord gave, and the Lord hath taken away; blessed be the name of the Lord."

She was given to us from the dense forests of Similipal, from the source of river Khairi. A tiny tender tiger cub, she stormed into our hearts greeting us the feline way, with sweet, "unh-unh-unh" on October 5, 1974 afternoon. Six and a half years later she was taken away as suddenly on March 28, 1981 afternoon. Six and a half eventful years in which she revealed much truth about her tribe, removed misconcepts, cleared confusions, and more than all these she proved how loving a tiger's heart could be to disprove its disrepute of ferocious and blood thirsty nature. Six and a half years of her thick bond of love and fellowship with us and her widening circle of friends, of a full grown tigress who lived a free member of my family, like my own daughter. She died bidding good-bye, last saying, "Ma, unh-unh-unh", to Nihar, her foster mother. She died in the prime of her youth, of all things so unexpectedly and so miserably of rabies.

We were not as strong as Job to say those Biblical words of faith: cried our hearts out and prayed for strength. It was all so sudden. We were overwhelmed by the shock. Babulu wrote, "I can imagine how you must be feeling. Well that was what that was in store for the lovely tigress who we all loved. Papa, I can't write anything more".

We gave her a befitting burial, praying that she be rested in peace, and may she not be misunderstood by any one for the few small accidents caused not by her but by the horrible virus which had been eating into her brain.

In life we knew how she drew people from far and wide, from across the seven seas, from all walks of life. In death she revealed how much wider ranged were her friends and well wishers, those who had seen her and many more who had not. All of them had such kind words for her and for us too. We were grateful and felt solaced by their condolements.

"Almost every day we were discussing the Princess Khairi with our friends and explaining how affectionately she had accepted your charge as her foster father".—Mr. C.M. Poonacha.

"Having lived so intimately with her all these years, I realise how bereft you must feel without her"—Dr. Salim Ali.

"There will never be another Khairi, and Similipal will never be the same without her". —Mr. Raymond L. Perkins.

"There can not be any other Tiger like Khairi any more. Great asset of Orissa has been lost in her death". — Mr. C.G. Somiah.

"The whole world lost a rare tigress of its kind at the prime of her age". — Shri Aurobinda Ashram.

"Her death in tragic circumstances is a calamity. Scientific world has been denied knowledge". — Mr. S.P. Shahi.

"Our heart-felt condolences on this loss which is as much a loss to you as to Science". — Dr. N. Seshagiri.

"Even though Khairi is no more but the research work done by you on her will remain monumental for the years to come". — Mr. B.R. Koppikar.

"It is some consolation to know that this at least will constitute a living memento of her role in our understanding tiger behaviour and biology". — Mr. Duleep Matthai.

"In future, do not shower so much love and affection on any of the denizens of the forest, please ! Because by doing so you attract us too, and when something goes wrong we all stand to lose by it. By taming the wild you have tamed many hard-cores like us". — Mrs. Nilima Mukherjee.

"Death of Khairi is an irreplaceable loss to our national asset. I hope that the void in the study of animal behaviour, with the sudden death of Khairi, should not discourage but urge the repetition of such unique studies". (translated from Oriya press statement) — Mr. Lalit Mohan Gandhi.

"You must repeat the "Khairi experience", because through you the emotional bond between tiger and man can be shared by so many people". — SANCTUARY magazine.

"What wretched luck !" — Mr. M. Krishnan.

Indeed, and how very sad. In retrospect, looking into her log maintained round the clock for over six years, the tragedy appears to have had been preordained by Providence. Our beloved Khairi was destined to be so sacrificed for the supreme cause of science. A tiger bites a dog, not the dog the tiger. The dog dies with that bite, at once. The tiger dies of that bite after five weeks. Why and how ?

I was required unnecessarily to go and remain in Delhi, February 1 through March 8, 1981. Hardly a month earlier, I had rushed through the removal of my bilateral hernia, in my fifty-seventh year, both on the same day, on December 31. I wanted to fit for the field

to take Khairi into the hills in mid-April. Her telemetric harness had come after six long years waiting. I could now follow her better in the hills till she found the wild male. I had to prepare her to carry the radio collar. I, therefore, delayed my departure and left unwillingly for Bhubaneswar on February 11, to reach Delhi the next day.

Khairi appeared ill after I had left. At 0244 hour (2.44 A.M.) on February 12, she vomited nine pieces of bones and four of undigested meat. Thereafter she was recorded in her log to have remained listless, sleeping and resting most of the time. At 0825 hr. when Nihar took the meat bowl she found Khairi still sleeping, so very ill that she was unable to get up. Lying on her side she faintly responded to Nihar's caress and concern. She did not accept any meat. All coaxing and cajoling by Nihar failed. She could, however, persuade Khairi to lap some milk, 60 times at 1042. Perhaps she had fever. Repeated shivers ran down her whole body with intermittent goose-flesh when she used to squeeze her limbs and bend in two. Nihar felt very anxious, so much so that she wanted me to be informed over the VHF wireless to cancel my flight and return immediately to Jashipur. I wish she had—but for Khairi it was not so to be. Nihar kept watch. Khairi slept virtually the whole day through except for walking a few steps to defecate liquid faece at 1505 hr. (3.03 F.N.). Prior to that she had refused at 1438 to take liver implanted with 10 tablets of Redoxon (Vit C 500 mg) but had lapped some milk, 69 times, and again after half an hour 74 times mixed with 10 teaspoonfuls of Avil syrup. Six hours later at 2111 she accepted four teaspoonfuls, 500 mg Ampicillin in milk followed by a piece of liver implanted with 7 tablets of Redoxon. After midnight she came in at 0025 hr. to sleep with her ma on the beds, and slept till 0640. While still on the beds Nihar could give her a second dose of Ampicillin in milk at 0559. Early that morning on February 13, she took meat at 0655 and with it six tablets of Redoxon and one Becosule (Multivitamin) capsule. She was getting active and better. She took a third dose of Ampicillin in milk at 1428. That afternoon she had her full feed and was soon enough her normal self again. Redoxon was continued 10-12 tablets a day till February 19.

The compound of Khairi's home in the Jashipur Forest Rest House had been securely fenced with chainlink mesh. Its gate grills were narrow enough against a small dog. Khairi was intolerant of any such intruder. Before the fencing was changed to chainlink mesh she had killed three dogs who had entered through the then barbed wire fence. She killed two with slap and the third by biting through its neck. Soon after she bit that dog we douched her face, chest and forelimbs with strong Dettol solution. Although apparently a healthy dog, I had, nevertheless, sent the brain of that third one urgently through a special massenger to the Veterinary Science College at Bhubaneswar to get confirmation on "Negative for rabies". The compound fencing was thereafter, changed to chainlink mesh.

I had left for Delhi confident that no outside dog would be able to enter into the compound. But, as wretched luck would have it, on February 20 a small stray dog of

I was coming, she woke up and came a few paces to meet me. She prustened softly, rubbed her cheeks on my night suit and then took my right leg in her mouth. She pressed it lightly with her jaws as was wont with her often in expressing her love. I could feel her fangs scratching my skin. I feigned pain and told her to stop meddling with my leg. She prustened and moving back a little sat down on her belly. I remained with her for about half an hour. Before I left I told Harish, her log keeper, not to sleep as they were prone to, dozing with their backs against trees when Khairi was asleep.

At 0230 hr. Khairi came and took Harish's right ankle in her jaws. The log keeper woke up with a start and shouted at Khairi while he pulled his canvas booted foot out from her mouth. Her sharp canines tore the boot and also at two points on either side of his ankle. In his feeling of guilt Harish did not wake me up.

After being shouted away by Harish, Khairi had gone back to sleep till 0518 and then she ramained active walking leisurely through a total of 92 minutes with intermittent rests till 0800 hr. In her active period she played with Jambo at 0549 hugging, restling and jawing each other through 20 minutes. At the end of her play she opened her jaws panting wide into the air at 0609. Nine minutes later she went to a day sal bush and tore it apart biting 12 times. At 0620 she played again with Jambo vigorously for 13 minutes. At the end of their play she once again opened her jaws wide in the air. At 0701 she bit an old motor tyre lying on the eastern side and holding it in her jaws walked around for a while. At 0727 she again bit that tyre four times and shifted it away with her jaws a few metres nearer the fence. The next minute she pawed aside, three times, a heap of dry leaves near that tyre and then lifting it in her jaws she leaned it against the fence.

Her peculiar behaviour of biting the dry bush and the jeep tyre was unfotunately not brought to my notice. Her biting and carrying the tyre in her mouth were not very unusual, but tearing the bush apart was, and also those, her long tiring plays with the bear. While playing with Jambo, however, she had invariably approached him every time with soft prusten, lovingly inviting him to come up for the play. After the accidental death of her intimate friend Bagha the dog with an irresponsible overdose af Acetalarsan on November 3, 1980, Khairi had turned closer to Jambo, the bear.

The roving virus had spread into her brain posterior, the cerebrum. That would increase physical activity. The virus would stimulate particularly that part of the brain which would instil and intensify the urge to bite—bite this, bite that and bite as many mammalian hosts too. The rabies virus, so fragile outside its host whom it kills, has to make sure of its own passage to living ones. Some rabid dogs have bitten their own masters. A rabid wild mongoose in its spree of bites forgets the fear of all, man and beast. A rabid lioness bit her

own grown up cub and her inimate cage mate at Nandankanan in my state. All three died of rabies. Be it, howsoever, compelling with the rabid, Khairi, however, never lost control with her canines and her claws on Jambo. If she had, Jambo would have been lacerated and torn all over. We checked on him later, after Khairi's death. He carried only a few superficial scratches like I did from playful Khairi. Both of us had been exposed to her rabies infective saliva from its very onset three to four days earlier.

At 0745 hr. she played again with Jambo for 9 minutes, a third time that morning. I was lucky in seeing them play when I thought of my super-8 camera, loaded it hurriedly and captured nearly three minutes of it in colour cine, their last play and my last chance.

At 0825 hr. she saw her ma coming with the food. When Nihar put the food bowl in front of her, Khairi voiced her love in gentle whisper. I was with them, close by. She startled eating and finished at 0835, and soon after that she lapped water 154 times, three quarter of a litre. While she was drinking we gave her a full drenching from a bucketful of water. She was loudly happy while I poured mugfuls over her body and Nihar patted those down on her back and belly.

At 0918 and 0934 hr. Khairi gave Jambo an intimate and lingering hug each time he went near her, and then she lay off to sleep and rest. At 1315 started a drizzle which continued for 20 minutes. Khairi slept on unconcerned.

At 1405 hr. she saw Bhaina, the hyena, loitering nearby. She suddenly went and grabbed him with her forepaws and then gave him a bite on his back, but she left him the moment he cried in pain. Bhaina came running to us. He had two small punctures on his withers. We applied raw Dettol and packed Sulphanilamide powder into those wounds. We then went to Khairi. I rebuked her for causing injury to Bhaina. Khairi saw my annoyance and sulked away. Both Nihar and I noticed the slight drag in her hind feet and wondered about its reason. Could it be because of long undetected hook worm ? She certainly did not look so in her well filled body. Later we got her faece checked. There was no infection of any parasite.

That afternoon I went to Khairi at 1610 hr. With me came Bitta Nath Nayak, the Assistant Field Director and Suresh Kumar Mishra, the Assistant Conservator of Forests, National Park. Nihar too came a little later with the meat in the bowl. Khairi was sleeping in her open air bedding close to the eastern side fence. When we went and stood near her she woke up and leisurely came towards Bitta. She prustened softly to him while she rubbed her cheeks and body over his trouser and then lifting her eyes up at his face she took his full sleeved left forearm in her jaws. This she used to do often to me and at times to Bitta, playfully. She had done it to a few visitors too, who had stayed with us in the rest house. When she did that we just allowed her to hold on till she was through on her own. She used to gently jaw and softly lick me too. Jambo and Bhaina also did so to me and

so did our dogs and even our lesser cats, civets and mongooses too in expressing their love and for their emotional integration with their loved ones.

That afternoon on March 25, 1981, when Khalri held Bitta's left forearm in her jaws and started pressing it, Bitta appeared visibly scared, understandably because of the earlier woundings of Harish and Bhaina. Shouting at her he pulled his arm out of the tigress's mouth. I reinforced his command by hitting her head with a stick. I saw Bitta's arm torn through the skin, about 2 cm by one of Khairi's lower canines. Snatching the thick and long bamboo stave from her log keeper, I rushed towards tigress Khairi, my trusting foster daughter. Swallowing the lump that bumped up my throat, I raised that stave high over my head. She rolled on her back in feline surrender. I struck her in quick succession, fifteen times, aiming at her right lower neck and jaw. She tried to ward those off with her fore-limbs and took a few on her left paw. That thick bamboo frayed in splits. It was only then that I stopped. Khairi got up and moved away a couple of steps where she squeezed herself prone between the peripheral trees and the chain-links. That was the severest of all beatings and exactly four years and a month after she had her previous, five strokes only, with a much smaller stick.

I went closer to talk to her. In utter bewilderment she looked up with sad questioning eyes into mine. She saw the overwhelming feeling of love and pain in my eyes that poured out into her. Lifting her face a little up like she had done the first time she had met me as a tiny little cub, six and a half years earlier, on October 5, 1974, she whispered in tender trusting prusten her all enduring love that she reposed on me and more on her Ma, Nihar. She conveyed clearly in her voice and her look, "Papa, it was too severe, very painful papa, but papa I love you still so, so very much, my dearest papa". It was beyond me to bear that.

Anthropomorphism! It is ? Think of it our good friends : What would she have said if she could only speak ? A so called mute animal, but how very expressive in her look and voice ! What I felt is beyond the pale of any language. What she did was beyond the ken of anyone's imagination, clearly recorded in her log.

At 1645 hr. Nihar placed the meat bowl before Khairi who started immediately eating voraciously. Three minutes later while she was still eating she suddenly retched and threw out her stomach. All that meat and liver she had taken in came out with high smelling muddy matter. Two minutes later she moved away from the meat bowl.

At 1708 hr. Nihar placed the residual meat again before Khairi. She ate a little with ten tablets, 5 gms of Redoxon implanted in that meat. She then lapped water five times. At 1740 she went to the place where she had vomited and licked five times the slimy residue from the ground.

Jambo went near her twice at 1925 and 1930 hr. Each time she placed both her arms round his neck and pulled him tight to her chest in deep lingering hug, her last parting embrace to her dear friend, the bear.

At 2050 hr. Nihar offered the meat a third time to Khairi. She ate through two minutes and then suddenly stood up and walked towards the fence. Standing there she strained and vomited again. She then moved forward and lay leaning on the fence. By 2130 she was fast asleep on her back, with her right forelimb propped against the chainlinks. At 2210 when she heard me and her ma coming she woke up and prustened to Nihar six times in quick succession. Nihar gave her ten teaspoonfuls of Avil syrup mixed in milk which she licked clean and then took a fresh piece of liver implanted with ten tablets of 500 mg Redoxon. We stayed with her for a while and, as noted in her log, when we walked back she caressed her lingering look on our receding figures till we were lost behind the tele-station building.

We went to her again at 2223 hr. Bitta and Suresh came with us too. Khairi woke up from her sleep and prustened to all of us. Nihar gave her 500 mg of Ampicillin and three Unienzyme tablets mixed in milk which Khairi took, haltingly. She then lay prone with her chin placed across her left forelimb. While she lay there she had intermittent shivers with goose-flesh. Nihar told me that it had happened the same way when Khairi had been ill for a day after my departure to Delhi on February 11. Bitta wondered if tigers too got malaria. There was no thought of rabies.

At 2240 hr. she started nibbling the nearer end of her tail 9 times. She did so 11 times again at 2309 and 19 times at 2343, and then slept for half an hour.

At 0016 hr. on March 26, she got up and nibbled her tail seven times and again three times at 0047. The itching in her tail had apparently increased because these later nibblings were visibly intensified to gnawing combined with licking. After that she continued to sleep and rest. At 0239 she was suddenly awakened by the loud talks of some visitors who had come to see her from the other side of the fence. She watched them for a long time as they went back along the fence to the main road. At 0259 she sniffed some dry leaves near the fence. At 0302 she bit a dry sal bush six times and in the end opened her jaws wide in the air. Between 0300 and 0400 hr. she walked slowly through a total of 42 minutes. At 0343 she stepped into her bathing rank and lapped water 142 times, about three quarter of a litre. Thereafter she again slept till past 0500 hr. She was still asleep when Gauranga the morning log keeper that day took over from Premchand.

Before leaving, Premchand told us that all was well with Khairi. She was sleeping on the eastern side. At 0530 hr. when Nihar was arranging for the bed tea, I went into the dining room where Jogendra was busy with the crockeries. The next minute both of us heard

the sharp distress cries of Gauranga from the eastern side. We rushed to find Gauranga lying on the ground and Khairi seen no where in the vicinity. Nihar too had heard Gauranga and came running from the bedroom. We lifted him to the room in the rest house occupied by Bitta. Gauranga told us that at 0530 Khairi had suddenly come towards him and taken him by surprise and so he was not quick enough to threaten her away with the long stave. She caught his left upper arm and bit it hard and when Gauranga cried out she immediately left him and ran away.

Leaving Gauranga in charge of Jogendra I went out to find Khairi. I found her behind the kitchen moving restlessly with her shoulder held high, her face lifted towards the sky and her hind limbs unsteady as she walked up and down to give short chases to the crows. I suspected the worst had happened. Those symptoms were typical of rabies. I took over to keep Khairi under control while I asked Nihar to fetch the super-8 cine camera and instructed Bitta to hurry up and bring the Dist-inject pistol loaded with the immobilising dope. Suresh too had heard Gauranga. He came after about ten minutes. Both of them took a long time in loading and making dummy trials with the darts.

Nihar remained near Khairi when I went towards the tele-station to see about the delay and as I lid I heard Bhaina crying and Nihar shouting at Khairi. I ran back to find Khairi running away behind the garage. Before Nihar could stop him the hyena had gone towards the tigress and got bitten on his shoulders again and also on his hip. We had no time to think about Bhaina's injuries. Bleeding badly he went away to the far western side sal grove.

Bitta brought the loaded pistol at 0630 hr. In the meantime I had taken three full cassets of Khairi's movement patterns in colour cine. Keeping my camera ready I took Bitta closer to Khairi and told him to dart. He was afraid lest the tigress should turn back on him. He told so frankly to me, that Khairi may come charging at him. I had to order hin firmly again to go ahead and dart. I was there to take care of her. Just then Khairi came towards us presented her left flank within three metres. I repeatedly urged Bitta to fire the dart. He did at last, at 0637 hr. The syringe caught Khairi on her left thigh. She flinched slightly and looked at us, and then walking on a few steps turned round to sit on her haunches in the passage to the kitchen. That was her favourite place where she used to lie in the afternoons watching Nihar and crying now and again, asking her ma to give her the food. I ran across to the other side to film the effect of the dope. She started slowly walking towards the tele-station house and as she walked between the garage and the outhouse the dart with its collared niddle slipped off. I handed it over to Bitta to check and followed Khairi as she crossed the road to the far side mango tree and than a moment later returned across to the one near which I was standing. There she started slowly slumping and when she finally collapsed on her belly at 0645 hr., she immediately vomited all that was in her

stomach, undigested meat and liver some of which she had eaten nearly 24 hours earlier. In normal health her stomach used to liquify any meat within 2½ to : hours. There was, therefore, something seriously wrong with her tommy.

Khairi was immobilised. Bitta checked on the syringe of the dart. He found that the plunger charge had misfired and only half the dope had got injected. He had loaded the 10 cc syringe with 8 ml Ketaset (Ketamine hydrochloride 100 mg/ml) and two of Atropine. Khairi was immobilised by only 4 ml of Ketaset. This was something in which we learnt to calibrate a restraint dose in immobilisation. Later on it has come back to me time and again that had the rabies in that dog been diagonised we could have partially immobilised Khairi every day through 14 days to inject the protective vaccine during that long period of more than a month when the virus was still incubating. God's will was, what had to be. Think of that puppy size dog !

At 0647 hr. Khairi was given two more ml of Ketaset. Her eyes were fully dialated. At 0653 she responded to my patting. Her pulse was 88 per minute. Two minutes later she lifted her forelimbs. At 0659 hr. 4 ml of Calmpose, (Diazepam 5 mg/ml) was injected. During the next quarter of an hour Nihar applied Dettol to Khairi's injuries and caressed softly all over her body. At 0716 Khairi moved her limbs. At 0723 a further 3 ml of Ketaset and 2 of Acepromazine (10 mg/ml) were injected in a 5 cc syringe. Khairi was moving sometimes, only her ears. At 0734 she was given 11 ml of Bicellin, long acting penicillin in the concentration of 3,00,000 units per ml and then at 0739 she was rolled on to a stretcher and lifted into the small enclosure of Beda the wild boar. Before Khairi was taken in Beda had been let out and the enclosure cleaned for Khairi. That enclosure had had been there since more than four years, but it was only a fortnight earlier that it had been provided with a sizeable good gate which allowed the two cubits wide stretcher with Khairi on it to easily pass through. It looked as if unbeknown to even any faintest premonition it was being kept ready to receive Khairi at the most crucial hour of her last days.

I spread a ground sheet. Khairi was laid on it, on her right side at 0647 hr. Her breathing then was 26 per minute. Her log thereafter was briefly as follows:

0654: First movement was noticed in her whiskers, twice successively and once in her lower lip.

0656: Moved her left forepaw and her head and then opened her eyelids twice.

0659: Closed her eyes.

0703: Turned her left earlobe consciously pricking at the sounds.
Intermittent movements continued thus.

0813: She rolled her eyeballs twice from side to side.

0814: Opened her mouth, briefly.

0815: Breathed heavily in irregular rhythm 18 times and then opened her lower jaw twice.

Thereafter movements in her ears, head and lips were more frequent. She breathed heavily 19 times at 0845, 16 times at 0912, 15 times at 0918 and 15 times at 0932 hr.

In the meanwhile I applied Dettol to her dart injury and swabbed with it her rear and then took her anal temperature at 1004 hr.—101°F. Her pulse was 106/min. She was aware of me—watched me, turning her head at 0955, 1000 and 1014 hr. Work in strengthening her enclosure and providing shade would take another two hours. Labourers were moving in and out. At 1020 I inject a further 2.5 ml of Ketaset with 1.5 of Acepromazine.

A couple of minutes later I heard Bhaina crying in the western grove. I ran there to find Beda snouting the injured hyena and snapping at him while Bhaina was in no mood or shape to play with that adolescent wild boar. I had to apply the cane to send Beda away to the far eastern side. Bhaina was still bleeding badly. We had no time for him. The most important treatment of washing his wound immediately with detergent had gone neglected. I had to defer looking into Bhaina's wounds till Khairi came out from the effect of the drug. I made him lie down in the shade, and I then returned to Khairi.

At 1027 her pulse was 106/min. I took her blood slide at 1035. Nihar caressed and fondled her now and again. I too did. It was then that our good friends Dr. Werner Handke, the German Consul General at Calcutta and Mrs. Kandke came to see Hhairi. I told them about my strong suspicion of rabies in Khairi. They were the last to come in and she her inside the enclosure. That was also the last I requested Mrs. Handke to take a few photograph of me with Khairi. I did not have many with her, and did not expect her to pull through that crisis. I told them so. Mrs. Handke took a number of shots of me and Khairi and me, Khairi and Nihar. I took a couple of pictures of Dr. and Mrs. Handke sitting near Khairi. Before bidding us good-bye, they consoled us saying that only a miracle could save our beloved Khairi and that they would be praying hard for such a miracle. That was our only hope. I knew from what I had seen of Khairi before immobilisation that it was not her normal self but the maddening virus which caused those few small accidents—imagine the consequences of any uncontrolled bites of a full grown rabid tiger—bites by Khairi which could have been worse but for her selfcontrol, and even those few which in all probability she would not have caused had the injured been alert and cautious. Nihar too thought so. She was the one who suspected first about Khairi's infection from the dog which our tigress had killed more than a month earlier. No one else agreed—perhaps gastroenteritis, may be hook worm or some other infection, so on and so forth they said, but not rabies. Yet it was rabies

sive, confirmed later after autopsy, which had been eating into her vitals and causing those symptoms towards the inescapable finish in certain death.

While she lay there tranquilised, small movements continued in her limbs and lips. She rolled her eyelids twice at 1133 hr. and heaved a deep sigh at 1145. She moved her lower jaw increasingly between 1215 and 1330 hr.—51 times. I took her blood sample and then rolled her on her back to her left side. Movement in her limbs, lips, ears and eyelids continued.

In the meantime we got the time to immobilise Bhaina. I injected 2 ml of Ketaset plus 1 of Acepromazine directly with a jab syringe at 1235 hr. He was down in one and a half minute. We washed his wound with strong Potash Permanganate solution and squeezed Pendistrin ointment into his six deep wounds all of which were then firmly stitched. Later on we were told that all that was wrong with any rabies infected wound. Those should have been kept open and no medicine with steroids should have been applied. The fact was, no one else except me and Nibar suspected rabies in Khairi, including the V.A.S. Dr. Dutta who supervised and Mr. Patro, the Pharmacist who did the stitching. I injected 10 cc of Bicellin into Bhaina's rump. He moved his ears at 1310 hr., turned his head at 1326, heaved a deep breath at 1327, lifted his head and turned it at 1330 and licked his forelimbs at 1331, flexed his fore legs at 1336, rose upto his hip at 1340 and waved his tail at 1343 hr. We then left him with Ranjan Banerjee, the mugger research scholar and returned to Khairi.

At 1435 hr. she watched with interest Jambo walking away to the northern side. At 1437 she opened her mouth and looked all round for a moment. At 1440 she opened her mouth a second time, looked all round and then slept. Movement in her limbs, lips, ears and eyelids continued.

I went to check on Bhaina. At 1450 hr. he tried to get up but failed. He failed again at 1457. He was finally up at 1501 hr., less than two and a half hours after he had been immobilised. Immediately after he was up on his legs I came back to Khairi.

Nibar had applied Soframycin on Khairi's prick injuries. I injected a further 20 ml of Bicellin at 1503 hr. She rolled her tongue over her lips 67 times at 1526 and again 22 times two minutes later. Immediately after that she raised her head, looked out for a few moments and then fell back closing her eyes. At 1529 Jogendra put a basin of water near her head. She opened her eyes and watched a while and then she propped her head and shoulders up on her elbows. Just then she saw me at the entrance of the enclosure and called me, miaowing four times. Saliva dripped profusely from her mouth. She did not take her sad eyes away from me till I took and offered her the water basin at 1542 hr., after twelve long minutes

when I had been lost in the silent look of her love and trust. Tears of pain and despair rolled down her eyes. I was unable to hold mine back. In the throes of my utter distress I lifted and held that basin to her lips. She lapped 282 times, nearly 1.5 litres.

Did I hear her say, "Thank you papa, I wanted that so much, so sweet from your loving hand ?" If she did not she certainly did look very much as if she did.

She could, however, hold that but for five minutes before she strained and retched heavily and then threw it out mixed with dark muddy matter, and as she did she also passed a little jet of urine and a windy bit of soft stool. A sharp pang, the echo of her severe pain, shook my whole frame. In the anguish of my heart I prayed the Lord to spare my innocent child the agonies of those deepening hours. I prayed fervently that she may to die soon. For I knew I would not be able to stand the horror of her gruesome drag towards certain death, those last hours in rabies when she would pitiably moan for water without being able to drink it. I knew that the sooner she died the better it would be for her and for all others too in providing my diagnosis and, more important, in proving that Khairi was not her own self when she bit Bhaina and Gauranga, and but for our wretched luck she would have remained the same loving good old self to die a natural death in her ripe old age perhaps after a decade more.

In the meanwhile Nihar had placed a folded ground sheet over the vomited fluid under Khairi's chin. Ten minutes later I offered her some milk, her favourite, mixed with Avil syrup at 1558 hr. She showed no interest. After two more minutes when I changed with a fresh dry one the ground sheet which Nihar had put, Khairi rested her chin on it and closed her eyes.

At 1623 hr. she strained again to vomit. A little slimy bit of dark faece dropped at her rear. Nothing came out in front. I sat near her head and caressing it gently I talked to her the tender words of my heart. She leaned on me, to her left and then slept on her side, her head placed on my lap. I remained with her, fondling and caressing while she slept. Overwhelmed by my feeling for her I brushed my lips on her face and placed my left cheek on her right while I moved my fingers softly through her ruff. She felt my soothing touch and soon relaxed into deep, snoring slumber through nearly twenty minutes. She awoke from her sleep at 1645 hr. and then made strenuous efforts to stand, three times with visibly heavy tremors over her whole body and at the end did get up to walk three dragging steps before she slumped to sleep again on her belly.

Nihar lifted the ground sheet and shook it clean before respreading it. I took the folded sheet out and scooped the soil soaked with Khairi's vomit; cleaned it with a shovel and then put strong Dettol on it.

At 1702 hr. she heaved heavily thrice with visible shivers on her body. Three minutes later she did so twice again. Repeated tremors were then noticed on her body intermittently with other movements. At 1728 she lifted and struck her tail four times on the ground. At 1746 she tried five times to get up but failed. Eight minutes later while trying again to stand up she lost balance and rolled to one side, but the next minute she did stand up, walked two steps and then suddenly fell forward on her face. She lay there through one hour except for brief raising her head and looking round at 1809, 1835 and 1838 hr.

She woke up at 1858, raising her head on her shoulders and batted her eyes. She remained thus through fifteen minutes, with her drowsy head up and then lay back again to sleep. At 1937 Nihar gave her some milk with Avil syrup and 500 mg of Ampicillin. Three minutes later Khairi retched and threw out that mixtures. While vomiting she also urinated. Feeling exhausted she then put her chin down on the bowl and rested through more than twenty minutes. At 2002 she started lapping the vomit from the bowl which she licked clean in three minutes. Thereafter through nearly half an hour she generally rested her muzzle on the bowl and now and then tried to lift her head in weak dipping movements. At 2030 she finally put her head down on the ground and lay on her side. While sleeping she had brief rigor when she used to squeeze her body and pull her limbs in the air, 69 times between 2042 and 2158 hr. In the meanwhile she had rolled on her back and changed side at 2059 hr. and also licked her chest and limbs thirteen times between 2115 and 2117 hr. Her anal temperature taken by me at 2126 hr. had been 104.3°F and pulse 146/min. With brief respite her rigor started again 2203 hr., and happened six times in four minutes.

2212: I injected into her rear muscle, 1.5 ml of Atropine Sulphate.

2219
2221: She stood up and walked just two steps and then collapsed on her belly.

2223
2228: There I offered her water in a bowl which she lapped 112 times. Nihar gave her milk mixed with 28 gms of Orhydrate, to prevent vomitory dehydration.

2227: Her anal temperature taken by me was 103.6°F and pulse 112/min.

2232: She lay on her side and slept.

2236
2238: She had rigor, 34 times.

2244
2248: She opened her eyes, raised her head and shoulders and then standing up walked

forward three steps to the bowl of water. She stood there and lapped 43 times and then slumped on her belly but continued lapping 18 more times after which she put her chin across her right forelimb and slept.

2348: She rolled in her sleep to rest her head against a sal tree.

March 27, 1981

0015 }
0019 } : Khairi had rigor 4 times.

0020: Woke up and lapped water 154 times from the bowl by just tilting her head over the bowl and then rolled back again into deep slumber, her head against that sal tree.

0040 }
0109 } : She had rigor 18 times.

0110: Woke up and lapped 187 times by slightly raising her head.

0115: Fell back again to sleep.

0117 }
0125 } : She had rigor, 8 times.

0131: She woke up and looked all round.

0135: Lapped 134 times from the water bowl.

0137: Stood up and remained standing for a while.

Three minutes later Khairi walked 12 steps to my bed placed close to her eastern fence. She looked at me and greeted in soft prusten. I talked to her lovingly in Oriya while she continued walking in unsteady gait till she suddenly fell flat on the ground at 0143 hr. The very next minute she was fast asleep.

She slept through nearly three hours. In her sleep she turned side only once at 0225 hr. and no more till she awoke at 0435. She then got up and walked unsteadily to the water bowl, lapped 78 times. Two minutes later she vomited milky matter, defecated slimy liquid and urinated, all in the same motion.

At 0445 hr. Khairi started licking her tail in that enclosure, twentyseven hours after she had nibbled it last at 0047 hr. the previous morning. She licked it 207 times, rolled her tongue 5 times over her lips and then looked all round for a while before starting again at 0450. During

the next nineteen minutes she licked her tail 218 times, her lips 9 times and twice each her back and her right hind leg. Her abrasive tongue scooped a few patches open on her tail. Raw blood oozed out from those. Khairi was visibly in great distress.

At 0508 hr. she walked to the water basin and lapped, standing, 29 times.

0510: Coughed 4 times.

0515: Lapped water 31 times.

0517: Vomited milky matter and defecated a little liquid faece, and then she had a slight choking sound in her throat.

0523: She heard Beda in his cage and looked at him.

0525: Walked 7 steps close to my bed and prustened 5 times while I talked lovingly to her.

She moved 6 steps forward to Beda's cage and looked at him quite a while and then continued walking unsteadily in her forelimbs and bucklingly in her hind, and while walking she looked up at the crows. A few minutes later she appeared much steadier on her front legs, but, as happens in rabies, her hind legs could never regain their balance again. She, however, was visibly gaining back on her own and getting the feel of her surround.

She knew, she had been confined, but she, nevertheless, clung to that small space in Beda's enclosure, even that 10 × 6 m oval. She instinctively clung to it by placing her urinary markings to prevent and conflicting entry of any other tiger into her territory during those, her vulnerable last hours. She attempted her first marking at 0532 hr. and again after three minutes, by lifting her tail in the direction of a sal tree and the fence close to my bed. Perhaps she did not have enough fluid or, more likely, the flexer muscles of her bladder had not braced up yet. No jet of urine came out. Eleven minutes later she did succeed at 0546 in squirting a jet on another sal tree, at 0550 on the chainlink fence and then a minute apart on two more sal trees.

At 0555 hr. she ejected her urine towards my bed. In the next seven hours till 1245 she lifted her tail for marking 34 times and succeded only 7 times. She started again after a respite of two hours, at 1441 and continued till 2252, with 58 attempts and 44 successes. The total number of events in marking attempts and successful marking on March 27 was thus 99. It was much higher than the previous highest of 71 on any single day.

The next day, her very end, on March 28, 1981 Khairi's marking frequency increased threefold. That day she started marking at 0346 hr. successfully on the sal tree near my bed. Her last urine marking was at 1504, about half an hour before she suddenly died of asphyxia

at 1530. In those less then twelve hours she lifted her tail to mark on trees and the fence, and unusually sometimes on the ground too, a total of 154 times in which she did successful urine marking 45 times.

I watched and wondered at those, her strenuous efforts to do the markings, even with the serious handicap of her tottering hind legs and swaying flanks. Why was she doing it so very often ? Was it because she could feel her time drawing nigh and so she tried hard instinctively to intensify the barrier of her personal scent markings against any other intruding conspecific ? Else, what purpose would it serve otherwise ? Mark particularly those, her marking attempts when there was no urine but which, all the same, did not deter her innate compulsion to go on trying. In doing so she emphatically reaffirmed that in tiger the act of marking was not an ontogenic relic as supposed by some but an ecological reality of successful survival, and in that she also emphasised that because individual scent flag is only marginally microdistinctive its interprative nose in the tiger has, necessarily, to be extremely ultrasensitive. She had been consistently proving it all her life to significantly reorient the tiger ecology and considerably wisen my own tigerology.

I checked on Khairi's earlier logs. She had stopped marking since her last at 0744 hr., doing it ten times on March 24. After her first long play with Jambo that morning at 0812 hr. she did no more marking during the subsequent two days. Prior to March 24, the diurnal rate of her marking varied, but had never been nil on any day ever since her last oestrus in October, that year, the last of a series of oestrus induced by the smell of a wild male during her one month stay in the Similipal forests in May-June, 1980. Khairi used to stop marking only when she was in oestrus. She never stopped otherwise except on two occasions when she lay so ill with maggotted wounds and high fever that she was unable to get up to do it. Immobilised as she was she could not have done marking on March 26, 1981. It took her a full day to get back into shape to start doing it the next morning. She thus confirmed that she was fully out of the immobiliser dope in less than twentyfour hours and all that which would be logged thereafter would record about what rabies was doing to Khairi and what reactions she had of it, both psychosomatic and physiovegetative. In the former she felt soothed by the presence of her near and dear ones, me and her ma, and also Jambo. In the latter she became increasingly restless with unstable hind quarters, dripping salivation and her tommy unable to hold anything.

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Sri Kailash Sankhla's "TIGER"—Some Brick-bats and Bouquets

By

Giri Raj Singh

Sri Kailash Sankhla is to be congratulated on his book "TIGER" — a book on the whole well written, well presented and very well illustrated. It is a mine of information specially for the general public, as it gives details of wildlife not commonly known or available to the man in the street. Though the book conveys no new information to experienced wildlife enthusiasts, but this shortcoming is made up by the illustrations some of which are excellent, as it deserves to be read by the "Old Timers" also. The wide publicity and very favourable reviews accorded to "TIGER", specially abroad, will I am sure help to focus more attention on the plight of our tigers. The Indian tiger certainly deserves and needs as much attention as possible if it is to survive at all.

A self proclaimed Tiger-addict, it would have been better if the author had confined himself to study of tigers only, and not brought up numerous other points of which he appears to have a very limited experience. Sri Sankhla seems to delight in uncalled for and unjustified criticism of others. He has unnecessarily sought to redicule that legendary old man of the Indian Forests, M.D. Chaturvedi. Even his one time boss, old friend and mentor: M.N. Sen has not been spared. It is hard to understand Sri Sankhla's obvious antagonism and severe criticism of the internationally famous Jim Corbett, and his unfavourable comparison of Corbett with F.W. Champion. It is clear that Sri Sankhla did not know or understand these two personalities, and did not try to go into their back-grounds. The comparison of these two is unfair to both of them. I had the good fortune to know both Corbett and Champion personally. Does Sankhla Saheb realizes to what extent he has hurt the feelings and sentiments of people of Corbett-land (Kumaon and Garhwal) ?

It is preposterous to insinuate that Jim Corbett, taking advantage of his closeness to the Viceroy, was in the habit of arbitrarily declairing certain tigers as man-eaters, simply to have the pleasure of hunting them down. Sri Sankhla is not aware that Corbett came into close contact with the Viceroy only after he had become world famous due to his man-eaters and his books about them, and by that time Corbett had practically given up hunting. Earlier in his career of hunting man-eaters, Corbett spent a lot of time, effort and his own money whatever he could then afford, in most cases with little or no official support.

Born and brought up in the forests, in close contact with all manner of wildlife, Corbett was a true son of the Indian Forests. He was a simple unassuming person, often identi-

fying himself so closely to the local people as to be himself considered as one of them. He is to this day greatly respected and loved by the people of Kumaon and Garhwal. This was made abundantly clear by the great enthusiasm by which his birth centenary was celebrated all over this area just a couple of years back. He is still fondly remembered even by villagers in remote mountain villages where he hunted his man-eaters. On numerous occasions he lived with these people in their small huts often overcrowded and shared with their cattle, eating the simple food these villagers could offer him. After spending three quarters of a century in the country that he loved, Corbett had to reluctantly leave India due to circumstances beyond his control. Plagued with ill health and old age, he was afraid that he would pass away and leave his only sister, who was his constant companion, without any support. So he went and settled down with his brother in Africa.

On leaving India, Corbett not only gave full tenancy rights to his farmer tenants but also paid to the Govt., advance rent on behalf of these farmers. Later he also sent a substantial amount for building of a town hall in his home town of Kaladhungi.

Sri Sankhla disapproves of Corbett becoming a Director in a Safari Company in Africa. He does not seem to be aware of the internationally accepted fact that Hunters make the best Conservationists. Though he has visited America, Sri Sankhla does not seem to know the amount of effort and money that internationally famous Hunters Clubs such as "The Shikar Safari International", "Game Conservation International" and many such other bodies entirely consisting of hunters, have spent on successful Game Conservation all over the world.

When F.W. Champion joined the U.P. Forest Service in 1921, Corbett had almost half a centuary of experience of Wildlife behind him. Champion was no doubt an efficient Forest Officer. There is also no doubt that his pictures of wildlife can still be considered some of the best ever taken in the Indian forest upto date, specially considering the fact that his photographic equipment was almost primitive as compared to the modern camera, and he never did have the benefit of a telescopic lens. But most of the pictures, specially the better ones were taken by the animals themselves. Champion was only responsible for setting up the camera, flash-powder equipment and trip-wire. The animals took self portraits by touching the trip-wire while Champion slumbered comfortably in the nearest Forest Rest House. Champion was never considered a serious naturalist even by his brother forest officers. Whereas Corbett's exeperience of Forests was recognized by the Govt., when he was put incharge of teaching Jungle-warfare to the troops during the 2nd World War. Champion was in the U.P. Forest Service for only 26 years, while Corbett spent almost three quarters of a centuary in India devoting his life more or less entire to Wildife and Forests. As far as Wildlife and Indian Forests are concerned, Corbett was an internationally famous figure.

On the other hand how many people even in India know as to who was F.W. Champion, or if he ever existed at all.

Sri Sankhala's indirect suggestion that Corbett Park would have been better off if Champion's name was associated with it is not only in bad taste but is preposterous.

Inaccuracies that have crept into Sankhala's "TIGER" are too numerous to be covered in this article. The following are just a few examples:-

1. Since Sri Sankhala is not a hunter he couldn't have measured many tigers in the field. He has been wrongly informed that an average Indian tiger is ten feet in length. An average tiger does not go much over nine and a half feet. A ten foot tiger is definitely above average, and any tiger over ten feet is exceptional. These measurements are over the curves of the body from tip of nose to tip of tail, so a massively built tiger with heavy muscles always gains 4 to 6 inches. A more reliable method of measurement is known as "between pegs". The tigers body is stretched, a peg driven into the ground at tip of nose and another at tip of tail. The body is then removed and a straight line between the two pegs is measured. This measurement is usually 4 to 6 inches shorter as compared to measurements over the curves of the body, hence most hunters do not prefer this way of measuring their trophies. My observations are based on actual field measurement of a very large number of tigers either by myself or by my two elder brothers in our combined experience of almost 75 years.

2. Sri Sankhala mentions that few Indian elephants have tusks and hence are not hunted for ivory. In actual fact a good majority of males do have tusks, there are a few tuskless males that are known as Makhna. Quite a few female elephants also have tusks, these being much smaller and thinner than a male. The main reasons why Indian elephants have not been hunted for ivory are:- (a) In most areas elephants have since long been protected under the Elephant Protection Act. (b) The average weight of an Indian tusk is not much over 30 lbs., as compared to an average African tusk which goes over 60 lbs. Tusks of well over 100 lbs., are not uncommon in Africa even to this day. (c) An elephant is too big to be easily killed and hidden by poachers. Extraction of tusks is a tedious and time consuming affair. (d) Indian ivory has always been considered inferior to the African ivory, as it is harder to carve.

3. Four Horned Antelope (Chausinga) can be seen in the day time only in Sariska according to Sankhala. Actually day sighting of these is very common in parts of Banda Forests, U.P., and parts of Madhya Pradesh, and other parts of U.P. also.

4. The presence of Black buck in Kanha Park comes as a surprise to Sri Sankhala, he feels that someone must have introduced them there. Though this animal is usually associated with arid or semi-arid and open country side, but in my experience it is not at all surprising to find Black Buck in heavy forested areas also. Quite a few years back there was a sizeable

population of Black Buck in an area known as Gau Shala in Ramnagar Forests of U.P., where they lived side by side with Cheetal, Swamp deer and Hog deer etc., in very thick cover. To this day, Black Buck can be seen in parts of Mustafabad-Barahi in Pilibhit and parts of Kishenpur forests in Kheri in U.P., living in Sal Forests with heavy undergrowth. At times I have seen few Black Bucks in the Tarai Forest of U.P., also.

5. Sri Sankhla's contention that Tigers and Leopards co-exist, is correct only to a very limited extent. I have myself seen a tiger and a leopard being driven out of the same beat, but this happened in only two cases as compared to literally thousands of tiger beats that I have seen. First of all the type of habitat usually preferred by a tiger is different to that of a leopard. In any area where there is a heavy concentration of tigers, one seldom comes across a leopard track. The reverse of this being true also. Normally leopards like to keep well away from tigers. I have come across three cases where a leopard trying to poach on a tiger kill, was itself killed and eaten by the rightful owner of the kill. And last of all, unlike what Sri Sankhla believes, the prey animals of tigers and leopards do overlap to a great extent, resulting in competition between these two big cats. I have come across numerous cases of leopard kills of: Nilgai, Sambar, Cheetal, Swamp deer, Hog deer and cows and wild pig. All these animals are the natural prey of tigers too. I feel that perhaps the only few animals that are not common prey of these two cats, are: full grown buffaloes and full grown Gaur, and large wild boars.

6. Sri Sankhla feels that Tigers normally avoid killing male Nilgai as it has sharp horns. How can this possibly be true when tigers can kill Sambar, Swamp deer and Chital, having much larger and sharper horns (antlers). It is interesting to note that a good majority of tiger kills of the above mentioned deer are invariably of males with antlers, perhaps due to the larger size and more food available as compared to the females of these deer. I have seen many many leopard kills of male Nilgais. There would be no problem at all in a tiger killing a male Nilgai.

7. It is obvious that Sri Sankhala has little or extremely limited personal experience of man-eaters. But this certainly does not give him cause to disbelieve, discredit and ridicule others who have had vast experience in this matter. He strongly feels that disability due to old age, or wounds caused by porcupine quill and gunshot are not a relevant factor in tigers taking to man killing. He goes on to argue that a tiger disabled enough not to be able to kills it's natural prey, cannot kill a human being also. He seems to overlook the fact that as compared to the smallest of animal on which the tiger preys, a human bering is the most helpless of creatures. Even a small rodent has greater ability than man, to see, hear and sense danger and get away in time. Even the most disabled tiger that may find it very difficult to pull down a deer, can easily kill a human being. Sri Sankhala asks, what does a

man-eater preys on, in cases when it often happens that there is quite a time lapse between human kills of most man-eaters. It is a well established fact that a good majority of man-eaters do not entirely depend on human beings for their food. In between human kills, man-eaters definitely do feed on other animals. Such tigers, due to their disability may not be able to pull down larger animals, but there are plenty of small animals that they can easily kill. In most cases tigers which are confirmed man-eaters do very often take baits laid out for them by hunters. It is incorrect to claim that all man-eaters are disabled. Perfectly healthy, young and normal tigers often take to man killing, as was abundantly made clear by the recent spate of man-eaters in Kheri in U.P. All tigers have an inherent and instinctive fear of human beings, but if this fear is lost due to some reason or other, then any tiger is liable to become a man-eater, as man is the easiest creature for a tiger to kill. But there is no doubt that a good majority of man-eaters do take to human kills, as they have been disabled in some way or other. Sri Sankhala seems to feel that in the past most tigers which were declared man eaters were actually not man eaters, but were declared so simply for the benefit of privileged trigger happy hunters. This may have happened in a few isolated cases, but there is no concrete proof that this did happen. However there is no justification for Sri Sankhala to cast aspersions on the integrity of senior Forest and other Officials who were responsible for declaring a tiger a man-eater.

While discrediting past well established theories as to the various causes of tigers taking to man-eating, Sri Sankhala has put up no definite suggestions or ideas of his own, except to suggest that, to use his own words:- "The man-eating tiger is mostly the creation of the human mind as a result of man's intolerance of a co-predator". It is well for Sri Sankhala to philosophy in this manner, but what about actual facts ? I wonder what the dear and near ones of a maneaters victim would have to say about Sri Sankhala's way of thinking ?

The numerous favourable reviews of the "TIGER" are well deserved, but these appear to be mostly from the Press and others who seems to have little or knowledge of Indian Wildlife. Though not claiming to be an expert, I do have personal and intimate experience of over half a century, backed by the much wider experience of my two elder brothers of Wildlife in general and tigers in particular, and quite a bit about game conservation also. I hope Sri Sankhala will not greatly mind some of my adverse comments on the "TIGER", as most of these are based on hard facts, and facts can be very disturbing and stubborn at times.

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Letter to the Editor

I have had the opportunity of perusing "Some brick-bats and boquets" — a criticism of Kailash Sankhala's book: TIGER ! by Giri Raj Singh. My first reaction was to wonder whether Singh had gone through the book thoroughly before embarking on what might have been more aptly termed "Some brick-bats". He has missed out on a lot of the book and, while criticising, he does not realise that appreciation, wherever and whenever it is due, is a critic's duty along with his criticism.

TIGER: is an objective and scientific study of the various phases in the life of the tiger from birth to death. The author of such a work must necessarily select and stress the connections in his narration and the element of logical and reasonable interpretation is implicit. Sankhala has achieved this and has covered it thoroughly by including co-predators, prey-animals, ecology, environment and other denizens of tigerland. Singh has pontified that nothing except the tiger alone should have filled the pages of the book; this would be tantamount to the author abdicating his responsibility and the book would not be worth reading. Would such a book be also published for reader knowledge in Japan in Nipponese, in Finland in Finnish, or in the U.S.A., or be acclaimed by numerous critics around the world? Would such a book be held as the best book on conservation, and as one of the 10 top books, for the year of publication ? It remains to be seen whether these numerous critics are "mostly from the press and others who seem to have little or no knowledge of Indian wild life", as compared to Singh's vast and unique experience. These critics and publishers, backed by the readers, obviously do not agree with Singh, nor do all the conservationists and naturalists at the IV International Congress of The World Wildlife Fund, San Francisco, described by Guy Mountfort: "When Mr. K.S. Sankhala presented a report, illustrated by his own superb colour photographs (on the tiger) ..... he was given a standing ovation". Singh's criticism is a confufed mass of self-contradictory statements. Further, choosing to mis-interpret, omit, miss-quote words and passages from the book to bring in extraneous and irrelevant matters, to make wrong assertions and to canonise some well-known figures by holding them as infallible, Singh has failed to realise that personal loyalty and friendship have no place in a scientific work but logic, reasoning and facts are paramount and if this paramountcy demolishes some pet theories or casts doubts on others so much the better for human knowledge and research. He has accused, tried and sentenced Sankhala as the Holy Office had done in the case of Galileo Galilei for his doctrine that the earth moved round the sun. Singh appears to subscribe to the stance taken by some of our "ace conservationists" that loyalty, particularly of the type that sweeps under the carpet any facts that might impair the image of a person "legendary" or "internationally famous", should take precedence over all else, however much omission of, and deviation from, facts might be entailed or however much it

might cloud up a scientific work, turning it practically into a science fiction. Would his yard-stick of success be the amount of publicity a man receives ?

How do Sankhala's alleged "antagonism" to, "severe criticism" of and attempt to "ridicule" M.D. Chaturvedi, Edward James Corbett and N.N. Sen shape up in his book ? About Chaturvedi, Sankhala quotes a statement at the last lecture during training when M.D. told his class to "shoot your first tiger in your first year"; this was in 1953. When they met again in 1965, after Chaturvedi had retired. Sankhala reminded him of the old man's advice to juniors in the Forest Service that they should ask their fathers-in-law to give them a pair guns instead of ear-rings for their wives. "Chaturvedi was crest fallen". The reason is right there. While disagreeing with Corbett's words that the tiger would disappear if protection was not given, Chaturvedi held in 1955, after retirement, that the tiger was holding its own but needed protection. He had changed his views about the tiger. About N.N. Sen, Sankhala informs us that he has was "virtually brought up ..... in the profession" by Sen and: "I shall not forget the advice and help of ..... N.N. Sen". There can hardly be any finer tribute.

Sankhala has appreciated Corbett many times in his book: Corbett's guess of 2,000 tigers in India in 1950 has been accepted as good; Corbett calling the tiger "a gentleman", has been appreciated; Corbett's urge for the preservation of the tiger has been praised while describing the V meeting of the IBWL in 1965 at Corbett Park where Sankhala had his proposal carried regarding compulsory production of proof of lawful procurement in the case of tiger cubs: "I feel sure that Jim Corbett ..... must have been comforted in his grave, for this was the first positive step towards tiger conservation".

Further, Sankhala is in agreement on many points made by the knight-errant of Kumaon that Singh omits to mention: that a tiger does not kill beyond its requirements; that a man-eater is mostly the creation of the human mind (Corbett's letter to J.A. Bramley: London: Times, May 10, 1955); that a tiger kills a heavy or large animal by sinking the fangs on the throat; that the tiger, unless given protection, is on its way out; that human beings are not the natural prey of tigers; that man-eaters in many cases had commenced activities by attacking women bending down for cutting grass or harvesting; that a tiger, in a locality inhabited by another, is hardly ever attacked by the resident; that tigers and panthers may inhabit the same area. Contrary to Singh's contention, Corbett's view does not limit such co-existence since the panther is mainly a nocturnal hunter as opposed to the tiger and there is no competition between the two although the leopard often poaches on tiger kills if considered safe, much to the dislike of the larger cat. The feeding habits of these two as also the prey animals are, necessarily, different due to their respective sizes, strength and nature although there are overlaps.

At the same time Sankhala has disagreed with Chaturvedi, Corbett and Sen on a number of points, with reasons given, which in the opinion of Singh is quite a crime. Singh obviously holds that the human mind should preclude itself from logic and reason when confronted with statements by well-known personalities and believe in them with the blind faith of a robot, an attitude which does not appeal to the inquisitive mind of a scientist, or that a new theory should always be substituted when demolishing any "past well-established theories". Why ? If such a theory could be demolished with reason and logic and the question left open for further theories from researchers with fresh approaches, more interest and intellects would be stimulated to tackle the question .Sankhala has advanced his own counter-theories in many cases just as in many he has left the question open. Only a superman, who considers his experience as unlimited while others are mere mortals—intellectual pigmies with feet of clay—would offer an answer to every question encompassing the vast subject of the tiger. "..... the book of nature" says Corbett, "has no beginning as it has no end" and about the tiger in particular, ".....what cannot be learnt in a life time". Unfortunately, there are supermen amongst us who fire a gun, paint a target round the point where the bullet lands and claim a bull's eye. "Experience" in the words of Col. C.R.S. Pitman (Game Warden of erstwhile Uganda Protectorate) "is usually bought; some find its acquisition dearer than others". This purchase for research and knowledge is commendable; while for personal gain, trophies, fame or satisfying own whims it cannot be excused. Our Prime Minister's words (in her inaugural speech at X General Assembly of the IUCN, New Delhi, November 24, 1969): "Mankind looks at animals ..... for what it can get out of them" is too true about those shikaris who are still smarting under the refusal of the Court of Law to yield to their claim for extermination of fauna.

Sankhala wonders how the blackbuck, **normally** a resident of open habitat, came to be in Kanha. What is the value of Singhs citing its presence in various other parts of the country that are densely forested when he does not advance the reason why this animal lives equally well in arid countries as well as in dense forests ? An instance of mis-interpretation by the critic is where he accuses Sankhala of attempts to "discredit and ridicule" the commonly accepted causes of tigers turning man-eaters. The relevant passage in the book is: "..... it is certainly not old age that turns a tiger into a man-eater: all tigers become old—barring accidents—but all do not turn into man-eaters". This is an indisputable fact, and is also the view of Amal Bhusan Chaudhuri who was D.F.O. of 24 Parganas and is presently occupying the chair of the Director, Forest Survey of India: "Old age and physical disability do not lead the tigers to become man-eaters" based on exhaustive researches on wildlife biology of the Sundarbans forests. It is significant that Singh makes no attempt to answer this riddle with a "combined experience of almost 75 years" backing him up but defeats his own argument and supports and paraphrases Sankhala's view by citing the recent sprouting of man-eaters

in Kheri district of U.P. which are young and healthy (which fact also contradicts Corbett's theory). The author has stated: "They are animals which have lost their fear of man, perhaps during some accidental confrontation which resulted in the predator's easy victory". The case of the killer tigress, shot in Corbett Park in 1967, buttresses Sankhala's statement: "And if he can kill game in the ordinary way between incidents of man-eating then what is one to make of the excuse of broken teeth and disabling wounds ?" No past theories about causes of man-eating have been "discredited" or "ridiculed" but flaws in these hypotheses have been pointed out with factual cases. Singh will find that Corbett and Sankhala are both right if he cares to read "The Kheri Maneaters" (a mimeographed report by Saroj Raj Choudhury and Janardan Prasad Sinha who constituted the team set up by the Government of India for investigating the causes of man-eating in Kheri district: later published in Cheetal XXI, 2 and 3, pages 3-25) Between the observations of Corbett and Sankhala considerable interim changes had occurred in the eco-systems (habitat, prey animals) and in the socio-ecological relation between tiger and man, and the adaptation of the tiger to the altered circumstances is plainly evident.

In elaborating on how to measure a tiger or on tuskless male elephants, Singh repeats what had already been stated in the book. In pointing out Sankhala's "inaccuracy" he has mis-quoted that Sankhala feels "that in the past *most* tigers that were declared man-eaters were actually not man-eaters" whereas the book records: "..... *any tiger could be* shot as a man-eater and there wonld be no protest, no enquiry, no call for a shred of evidence". This is amply illustrated in Corbett's The Man-eating Leopard of Rudraprayag where some 20 leopards are recorded as killed as the man-eater or in the case of the Pujari man-eater of more recent experience where 5 innocent panthers were massacred in the name of the culprit. In the Motoring Guide of India (1976), I have mentioned how 9 elephants were declared 'rogues' by the forest officers in 1973-74 out of which 7 were shot and the remaining 2 were promptly taken off the list of 'rogues' when sharp questions arose in the West Bengal Legislature. Out of these 7, at least 2 were completely innocent. This automatically casts doubts on the integrity or diligence of the officials concerned in such declaratious. Singh substitutes *"only seen"* for the word *"easily seen"* in the book where Sankhala talks about the chausingha: or where the author's words are "Indian elephants are *little* hunted for ivory", Singh chooses to resolve them into: "..... are *not* hunted for ivory".

Sankhala's unconcealed and uncompromising criticisms have the ring of genuineness because of their reasoning and because he does not spare even himself in the process: "I was tongue-tied with shame" when Sarojini Naidu commented rightly on the theatrical performance of Urvashi, the baby elephant at Delhi Zoo; "my success is limited to only four reserves and 43 tigers", "my information on juvenile sex ratios (of the tiger) in the field are scanty"; "I had more failures than successes (in photographing wild-life)"; about shooting

his first tiger—by torch light in the Madhogarh forest that is now within Sariska Tiger Reserve—he describes in detail how he felt guilty and has unequivocally dubbed it "murder".

It is a fact that Corbett had shot, and had kept company at shooting of, plenty of innocent big cats for fun and sport. These are described in his own books. He had arranged for Viceroy Linlithgow, his wife and three daughters to shoot five innocent tigers in the Kaladhungi area around 1936-37 in Kumaon where Corbett National Park is located. Champion never indulged in such activities. Had the Park been named after Champion and had the tiger been able to flex his brain muscles to consider the matter he would have condemned such a nomination as "in bad taste and preposterous" ? In the foreward to The Man-eaters of Kumaon, Linlithgow, then Viceroy of India, mentioned: "I can..... write of him that no man with whom I have hunted in any continent *better understand the signs of the jungle*". This leads us to Singh's statement that Corbett's vast experience of the Indian forests made him an instructor in Jungle Warfare training during World War II which is correct to a large extent. But this fact is irrelevant and extraneous in criticising TIGER ! and has neither been discussed in the book nor has it been brought into question. Further irrelevent passages are that Sankhala "did not know or understand" Champion or Corbett, or that feelings and sentiments had been hurt· TIGER ! is not a portrayal of these personalities nor is it a book meant to pamper feelings and sentiments. Singh's long-winded biography of Corbett is also irrelevant, and incorrect is his assertion that "Corbett came into close contact with the Viceroy only after he had become world famous due to (inter alia) ... his books about them (man-eaters) and by that time "Corbett had practically given up hunting". Corbett had been arranging hunting trips for Viceroys since around 1936-a date considerably prior to the publication of his first book, The Man—eaters of Kumaon, in 1944. Corbett shot his last tiger on release from the army after World War II about which he says: "It was murder of course, but justifiable murder .....". Furthermore, if Singh reads the texts of My India, The Man-eating Leopard of Rudraprayag, etc., he will find Corbett being supported and helped by *high* Government officials: Gen. Sir Henry Ramsay, Sir Frederick Anderson, Percy Wyndham (Commissioner of Kumaon Division), Sir Wiillam Ibbotson (Adviser to the Governor of the U.P., then Dy. Commissioner, Garhwal), Michael Keene (Chief Secretary to the Government of the U.P.), and others. Another erroneous assertion of Singh's is that female elephants have tusks: in India they do not-only the African female, Loxodonta Africana, has tusks.

We have noticed that many shikaris had turned conservationists, and some have replaced their guns with cameras for shooting. Corbett was one of them as were Chaturvedi and Champion. It is indeed a contradiction, as Sankhala puts it, to find such a person reverting to, or helping with, shooting once again, Singh omits the qualifying prefix, "hunting" from "Safari Company" of which Corbett became a director in Africa, altering the entire

ication in the book. And it certainly is not an "internationally accepted fact that hun- s make the best conservationists". There is the instance, mentioned in the book, of a kar company claiming a tiger as a man-eater and having it shot by a client. Later they duced some silver bangles, allegedly found in the animal's stomach, which were in perfect ape neither showing any signs of chewing (as is the habit of every tiger and my tiger tographs show it clearly) nor of rejection, which are invariably the cases. To my know- ge, one shikar outfit has claimed that *all* Sunderban tigers are man-eaters and had quested me through a magazine to write an article on the subject, Chauhuri, while D.F.O., d his assistant, Kalyan Chakrabarti (later Field Director, Project Tiger Sundarbans) had de extensive studies in the Sundarbans and had arrived at the conclusion "There are e tigers which chase human beings, sometimes injure them but do not kill them: this e of tiger together with the aggressive man-eaters described earlier in this paragraph stitute about 20-25 numbers or one fifth of the total tigers (in the Sunderbans)". Guy ountfort, Charles Mc Dougal and Zaffar Futheally believe in Hubert Hendrich's short-study ure of only 3% being man-eaters in the Sunderbans. These unpalatable facts do not lend idence to Singa's claim and spawn euphemism. Shikaris and their outfitters have been mpelled, in most cases, to pull down their shutters and reasons, similar to what I have rmated, are being advanced to justify resumption of hunting. Admittedly, some of the offi- al and public game bodies have turned genuine conservationists, but too many private rganisations still took at the tiger only over the imaginary barrel of a gun Inspite of gislations, the dangerous trend of exterminating fauna still plagues us although the con- ours might have undergone a change. Singh's very protective sentiments in these cases e not justified at all.

F.W. Champion was not only a very learned man of the Forest Service; he was a top- lass photographer who had achieved near-miracles with his plate camera in the twenties nd was a hunter-turned-conservationist. Foresters and knowledgeable people are well ware of these facts. Yet, Singh has, probably in ignorance of the art of photography, resort- d to an open diatribe against Champion who cannot join issues, and has himself indulged the same taste he associated with Sankhala ! Citing "doubtful" as "discredit and ridicule" n the issue of tigers turning to man-eating displays a prejudiced mind with preconceived deas that shut out perspectives from an objective survey: I am making this statement also e view of Singh's remark: "... (this) book conveys no new information to experienced ildlife enthusiasts" while he challenges numerous prime information recorded in this very ook, one being the fact that the largest Indian antelope, the nilgai "... is not often prey o the tiger" because "... an adult bull with its sharp horns is too much even for a tiger o tackle". The horns of a nilgia are very short and sharp and are effective at close quar- ers making a struggling nilgia more dangerous than a struggling sambhar or cheetal with

large antlers that cannot be manipulated into jabbing attacks, at close range, on the tiger if is already on the animal from a side or rear. A tiger, hardly if ever, makes a frontal attack and a stiletto is a deadlier weapon than the sabre in close combat.

I have been observing wildlife regularly, with an open mind, for the past 40 years, hold Jim Corbett in great esteem and admiration and have, in my library, all his published works. But I would certainly resent it if debarred from criticising Corbett's views on certain matters which, in my experience and considered opinion, do not appear right among his writings. Singh has been affected by his own words: "... facts can be very disturbing and stubborn at times" while I disagree with his view that length of association alone, without an analytical, inquiring and open mind, makes a man an expert. One watchman was at the Indian Museum, Calcutta, for some 40 years and his knowledge of the exhibits was considerable but he can hardly be accepted as the greatest expert on the treasures housed within the Museum building.

S. Roy
38, Southern Avenue, Calcutta

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Improved Prospects for Asia's Last Lions

By

Peter F.R. Jackson

Switzerland

In 1955 massive over-grazing by domestic cattle was steadily destroying the Gir Forest in the Kathiawar peninsula of India, north of Bombay, the last refuge of the Asiatic Lion.

"At the present rate of attrition the Gir should only last another 20 years, during which there will be more and more contact and conflict between man and lions", wrote a young Californian ecologist who visited the forest at that time. The ecologist, Dr. Lee Merriam Talbot, now Director General of IUCN recommended an immediate reduction in livestock grazing and an urgent ecological study to determine the right balance between livestock, forest growth and wildlife. Only then, he declared, could positive management be implemented to ensure the future of lions.

More than half the fateful 20 years had elapsed before the ecological study was undertaken. But, thanks to the conservation programme which followed, the Asiatic Lion is flourishing in the regeneration forest of Gir a quarter of a century after Dr. Talbot's dire prediction.

WWF Project 298 contributed to the ecological study supervised by the Bombay Natural History Society and the Smithsonian Institution of Washington. The study covered the lions, their prey, both wild ungulates and domestic livestock, vegetation, and the role of the maldharis (cattle breeders) who live in the Gir forest. On the basis of these studies Mr. Guy Mountfort, WWF International Trustee, presented the Government of India with recommendations to save the Gir Forest and the lions. In late 1972 the State Government of Gujarat launched a long term management programme based on complete protection of the Gir forest, and phased resettlement of the bulk of the maldharis and their cattle.

Peter Jackson, a writer on wildlife and nature conservation recently spent a week in the Gir forest and reports on what he saw: From the air the Gir forest stands out as an island of undulating hills in a sea of ploughed fields dominated by the nearby ancient volcano of Girnar.

Under the burning sun of the dry season from March to June the overall khaki and brown is broken only by scattered evergreens, gallery forests along streams and by two or three small blue patches where rivers have been dammed to form reservoirs. This is the season when most men, animals and plants brace themselves to endure the dry heat and await the annual renewing rains of the monsoon.

It is both the best and the worst time to see the GIR-best to see wildlife because visibility is excellent, and worst to see the forest because it is dry and looks lifeless.

Dr. Talbot saw it under these conditions in 1955, but instead of wildlife he saw thousands upon thousands of buffalo, cows and goats desperately competing for anything eatable. During two weeks he saw only three chital or spotted deer (*Axis axis*), two small herds of nilgai antelope (*Boselaphus tragocamelus*) and chinkara (*Gazella gazella*) and one wild pig (*Sus scrofa*).

In the last week of March, 1981 I travelled through many parts of the 1,412 square kilometres of Gir. Herds of spotted deer 40 or 50 strong were frequent and we seldom moved far without seeing smaller herds. Sambar deer (*Cervus unicolor*) and nilgai were scattered through the forest and occasionally a fourhorned antelope (*Tetracerus quadricornis*) darted through the trees. At the Kamleshwar reservoir marsh crocodiles (*Crocodylus palustris*) basked on the banks or propelled themselves through the water with gently undulating tails. A panther stepped out of the way of our jeep and stood calmly looking at us at a distance of four metres when we stopped to admire him.

A few months earlier 11 black buck (*Antilope cervicapra*) were introduced into their former habitat in the eastern Gir. We were fortunate enough to see two of them, a male and a female, apparently well settled.

Despite the advance of the dry season the vegetation was in good condition with large areas of dry grass still standing, sometimes to the height of a man, and young trees coming up.

But the lions are the principal attraction in the Gir. In a census in 1968, when the ecological study began, there were 177 left of this fine animal, which 150 years earlier could still be seen in Turkey, through Iraq and Iran and across northern India. Less than a century later the only survivors, perhaps about 100, were in the Gir forest. Fortunately they were given protection by the ruler, the Nawab of Junagadh, with the support of British officials whose compatriots has been largely responsible for the massacre of lions in the rest of India.

A few hours after I arrived Mr. M.A. Rashid, Gujarat's Special Chief Cnservator of Forests for Wildlife, who has supervised the Gir Lion Sanctuary Project, took me out to see the lions. We drove along the edge of the forest and stopped by a thick rubble wall a metre high. It is 400 kilometres long and has been constructed right around the Gir sanctuary to keep out grazing livestock.

We climbed over it and walked through the trees, crunching the big dry teak leaves. Mr. Rashid nudged me and pointed—about 25 metres ahead lay three lions, their tawny coats making them almost invisible against the dead litter. They glanced at us for a few moments and then returned their attention to a young buffalo held on a leash by a forest guard,

relaxed against a tree with his shotgun slung on his shoulder, chatting nonchalantly with some of his colleagues.

The scene was the traditional Gir "Lion Show" put on for tourists, with the buffalo as bait to hold the attention of the lions. Formerly they were allowed to kill the buffalo, but nowadays it is taken away unharmed on most occasions. Thousands of tourists, mostly Indian, visit Gir to see this supremely unexciting show, but plans are now well advanced to offer something better. An area of 400 hectares is being enclosed in which lions can be viewed easily from vehicles as they move about naturally.

I met lions on several other occasions. Once trackers led me to within three metres of a lioness, who appeared to adjust herself into a good pose as I crouched and photographed her. Apart from an outbreak of man-eating at the beginning of the century during a particularly harsh period of drought and scarcity, the Gir lions are notable for their virtually complete lack of aggressiveness towards humans. Some have even been touched, albeit by guards with whom they were familiar.

There are still several thousand cattle in the Gir, and I came across small herds from time to time with their attendant maldharis. Many still fall victim to the lions, which often leap into the thornbush enclosures where the cattle are kept at night. During a lion study ten years ago Dr. Paul Joslin found that domestic livestock was the mainstay of the lions because wild prey was so reduced in numbers Furthermore hide collectors drove lions from their kills before they could eat their fill, so they had to kill again. The Gujarat Government's management plan has dealt with this situation by gradually resettling the maldharis and their cattle as the wild prey became more numerous.

Compensation is paid to those who lose livestock to lions, provided it is not due to carelessness or to illegal infiltration of cattle from outside the sanctuary.

Nearly half the 845 maldhari families who lived in the Gir in 1972 have been moved out and settled on land which has been prepared for them. Grants and loans are given to build houses and community facilities such as supply of drinking water, schools and health centres are provided. However it comes hard to traditional graziers to turn to agriculture, and many still yearn for the forest.

Supporting the Gir conservation project is an educational programme. At the Sasan tourist centre an orientation display illustrates the whole spectrum of the forest, its wildlife and the maldharis.

Hundreds of young people are brought to the Gir each year to participate in Nature camps organised in collaboration with WWF India, and nature trails are being prepared to help visitors to unnerstand the life of the forest.

Crocodile eggs are collected every breeding season and hatched in a centre where the young are raised in tanks until they are big enough for release in the wild without danger from predators.

The Gir Lion Sanctuary Project is funded entirely by the Government of Gujarat with some assistance from the Central Government. It has meant the investment of about three quarters of a million dollars and the loss of about $300,000 annually in revenue because forest exploitation has been stopped.

Despite the manifest success of the Gir project, problems remain. The last Asiatic Lions remain vulnerable to epidemics because of their concentration in one area. A second home is planned in the Barda hills, 130 kilometres to the northwest of Gir, but there have been no lions there for over a century and it is heavily overgrazed by livestock whose maldhari owners may not welcome the re-introduction of lions. There is little wildlife and it is conservatively estimated that it might take up to 10 years to prepare the area for lions.

The regeneration of the grasses in the Gir has increased the dry season fire hazard and a 40 station radio network is being established to give warning and assist in controlling the devastation. In addition, controlled burning is carried out to limit the hazard. This arouses the indignation of outside cattle owners whose livestock has been excluded from the park and who have never relaxed their pressure to be allowed to graze their animals there again. In drought years, the pressure, with strong political backing, could intensify, but the authorities plan to meet such a contingency by harvesting grass for use outside the Gir.

The heart of the Gir Lion Sanctuary has been declared a National Park covering 259 square kilometres "to provide total protection from all forms of human disturbance". Despite this, the Gujarat Irrigation Department is pressing for the construction of a dam which would flood part of the area, in addition to causing great disturbance during construction. The Forest Department is resolutely opposing the dam project, but contracts have already been awarded and the issue remains in doubt.

Whatever the outcome, the last Asiatic lions have been given a new lease of life in the Gir forest and growing consciousness of the importance of nature conservation in India bodes well for the future.

ndian Board for Wildlife—Expert Committee on Flora

Minutes of the 1st Meeting held at calcutta on 4th of August 1981

The Committee discussed in detail its further activities. Several members emphasized that the activities of the Committee and of the BSI should be widely publicized to create concern for conservation and sustained maintenance and utilization of plant resources. The following items were discussed:

genda Item No. 1) **Establishment of centres for rare flora in botanical and zoological gardens**

The importance of conservation of flora was emphasized by all the members and it was felt that one of the possible ways could be to have special sections on conservation of flora in all the botanical and zoological gardens. The Committee recommends to the IBWL, that all State Governments and Corporate Bodies who are managing the Botanical and Zoological Gardens in the country be suitably advised to set apart some areas for this purpose. Setting up of such areas for rare flora will be of much educative value to students and other visitors to the gardens. A note on the subject prepared by Dr. S.K. Jain was approved for sending to the Director, Wildlife. It was also recommended that if the proposal is accepted in principle, the IBWL may consider nominating an expert on rare flora on the Zoo Committee.

genda Item No. 2) **Study of rich forest areas**

The importance of tropical rain forests in the world, and particularly in our country was discussed. Considering the fact that tropical rain forests have been disappearing at a rapid pace throughout the world, India still has good areas of tropical rain forests in the Andaman and Nicobar groups of Islands besides small patches elsewhere such as in the Western Ghats. The need to study these expeditiously was emphasized, specially in view of rapid developmental activities and other pressures in these areas.

The Committee recommends to the IBWL to be seized of this problem and advise the concerned Govt. Departments (like the BSI/DOE) to undertake very intensive studies in these areas and for this, if need be, create necessary additional facilities and infrastructure. The concerned Departments be requested to give full support to such programmes. The aim of this work shall be to conserve and suggest measures for the sustained conservation of these unique ecosystems.

The Committee felt that expertize for undertaking such work does extis in the country; it only needs to be pooled together and supported.

It was also emphasized that the agencies who take up this work, whether the BSI or FRI, or the Forest Deptt., should be suitably manned and supported.

Agenda Item No. 3) **Mapping of Flora and Vegetation**

For evaluating the status of any species or plant communities in our country, vegetation and species maps are essential. With regard to vegetation maps, it was discussed that maps of forest types and communities prepared by different agencies (FRI, FSI, NAO and Survey of India) are already available. They all need to be brought together to evaluate the present position and these may be up-dated if necessary. The existing maps could be whetted/ verified by expert agencies. It may be seen then whether the existing maps would serve the needs of the users, and the question of sattelite mapping should perhaps be taken up after this has been done.

As regards species maps, it was decided that primarily the BSI and FRI may initiate this work and for intensifying the work, they may consider framing an All-India Co-ordinated Project involving other competent institutions and specialists. For this purpose, the priorities may be given to the following:

a) Commercially important species
b) Species of conservation value

The question of lacuna in knowledge of vegetation and flora of many areas was also discussed and the Commiitee recommended that efforts be intensified for speedy survey of all areas.

Agenda Item No. 4) **Studies on animal-plant relationships**

The importance of studies on plant-animal relationships in conservation of Flora as well as Fauna was discussed. The paucity of information on this subject was emphasized by all members.

The Committee recommends to the IBWL to support research in this area, either in the BSI or FRI with special emphasis on the feed of important animals and on the inter-relationships in floral and animal life eco-system, to help in the management of the Parks.

In this, the need for study of the ecosystem of National Parks and Tiger Reserves and Sanctuaries was discussed. It recommends to the IBWL for drawing up a scientific and sound management plan for the National Parks, Tiger Reserves and Sanctuaries.

As the study of flora of these habitats is urgent, the Committee recommends to the IBWL to impress on the appropriate authorities (like the BSI) the need to set up special suitably manned units or institutes to undertake such studies.

Agenda Item No. 5) **Awareness in rural and remote areas, and public involvement**

With regard to spreading the message of conservation in rural areas, it was decided that the help of non-official organisations should be taken. The representative of the World

Wildlife Fund, Mrs. Purnima Dutta suggested that when they organize Nature Club Camps, some input of Flora will be welcome. The B.S.I. offered to supply this in their camps. The activities of the ISIM of BSI in this respect were recalled and their greater involvement suggested. Efforts will also be made to extend these activities with other organisations such as the Wildlife Preservation Society of India.

The Committee recommends that the services of the non-official organisations or Extension Services of the Govt. Departments be utilized for awareness in rural areas regarding conservation as well as rational exploitation of plant resources.

Agenda Item No. 6) **Better utilization of plant-resources**

It was realized that the plants play very important role in the life and economy of the tribal people, and if ways could be found for better utilisation of plant resources of those areas, that would help the poor tribal people economically. It was decided that a proforma should be drafted for this purpose and circulated to various Forest Officers, Tribal Institutes and others for as wide a circulation as possible and data collected on it.

Agenda Item No. 7) **Control of internal and international trades in Flora**

It was emphasized that there is urgent need to have a close watch on irrational trade and over-exploitation in trade in plant resources. In order to have a check on international trade in plant products, it is necessary that the export-point/ports should have botanists associated with the Assistant Directors of Wild Life, as presently only the Zoologists are associated.

The machinery of the control on trade in Wildlife and its products should be suitably strengthened for effective control. For this purpose, illustrated manuals on the Flora are useful. Identification manual of restricted plants and plant-products should be prepared.

Training and extension courses on such subjects must be started in the Wildlife Institute at Dehra Dun singly or in collaboration with the Botanical Survey of India.

Agenda Item No. 8) **Training of Tourists' Guides for Flora**

The subject was discussed in detail and it was realized that many tourists show keen interest in orchids and other flora of our country and want to have information on interesting plants and plant resources. For this, two possibilities were suggested.

1. Imparting some training on Flora to the professional guides of the Tourist Departments

and

2. Create an honorary cadre of Tourists Guides by training in Flora.

For these, the details have to be worked out, after discussion with the Tourist Department. Some members agreed to suggest certain names for this honorary cadre for consideration.

Agenda Item No. 9) **Conservation of Orchids**

It was emphasized that the best method of conservation of orchids will be to expand their cultivation so that there is no pressure on natural populations.

The Committee recommends that agencies currently interested in study and conservation of orchids be supported to enable them to expand orchid populations in the country by conservation and cultivation particularly by seedlings or meristem culture.

News

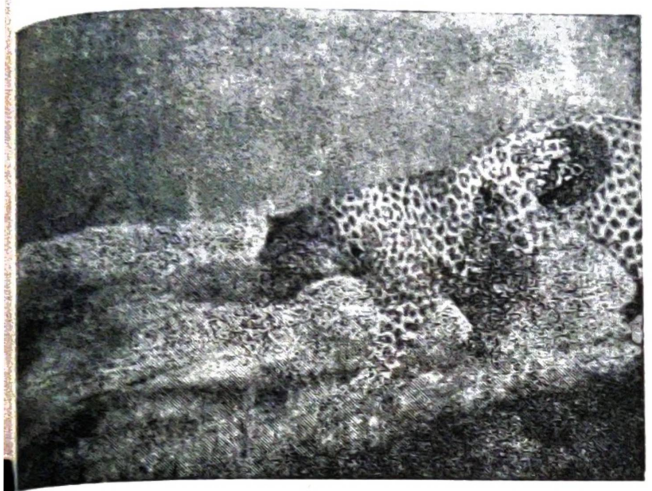
A workshop on Techniques in Wildlife Research and Management will be held in Kanha National Park (M.P.) in January 1982.

It is sponsored by the Government of India in Colaboration with United States Fish and Wildlife Service and other organisations.

Mr. V.B. Saharia, IFS, Director, Wildlife Research and Education, FRI and Colleges, P.O. New Forest, Dehra Dun will be the Principal investigator and Workshop Director.

AIMS AND OBJECTS

The workshop aims at presenting a package of modern field techniques in Wildlife Research and Management covering 15 major subject areas, by a team of international specialists and Indian counterpart scientists, over a period of nearly 20 days entirely in a field setting at Kanha National Park in M.P., India



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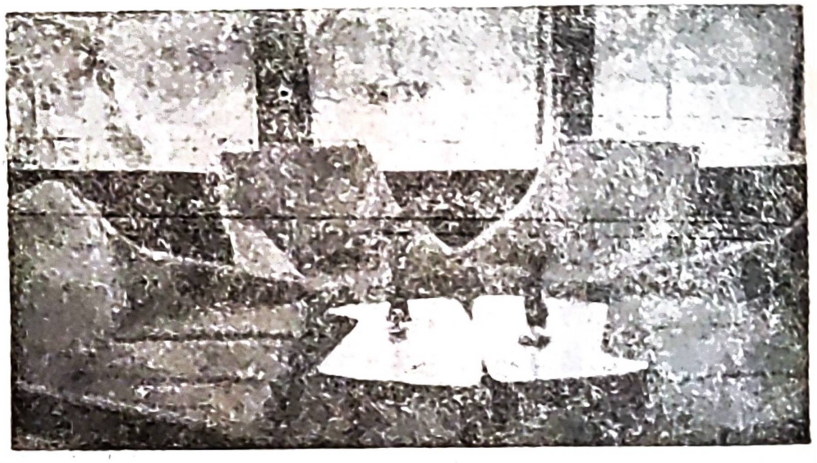

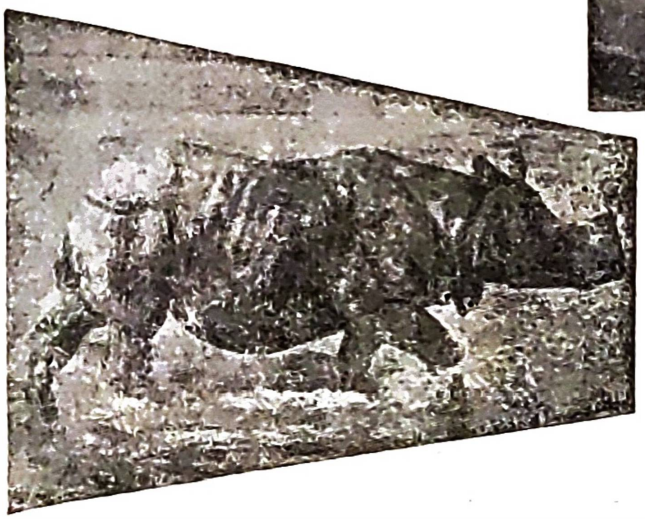

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कोकरेपेल्लूर का एक दृश्य । (फोटो—एस० पी० शाही)

मकान के सटे वृक्ष पर पक्षियों का समूह । (फोटो—एस० पी० शाही)

The Wildlife Preservation Society of India

1. The aims and objects of the Society are :—

   (a) To promote interest in and impart knowledge regarding the preservation and conservation of all forms of wildlife, particularly among the youth of the country.

   (b) To co-operate with the Govts. of India and States and with other Societies and Institutions having similar aims and objects in working for the interests of wildlife.

   (c) To assist in enforcing and actively supporting the Forest Acts, Wild Birds and Animals Protection Act, and Rules etc. of States and the Indian Arms Act and Rules in so far as they pertain to wildlife and to bring to the notice of the authorities any infringement of the same and to assist in the detection and prosecution of offenders in respect of such laws.

   (d) To advise and help the Govt. and wildlife administrators in the formation, maintenance and protection of Sanctuaries and National Parks, the preservation of wildlife in general and rare species of India in particular and in the introduction of exotic species into the country, the rehabilitation of rare species etc. and in the revision on rational lines of the shooting and fishing rules, so as to conserve and increase wildlife stocks.

   (e) To raise funds for the carrying out of the above aims and objects and to found and maintain museums, reading rooms and libraries of natural history in order to disseminate knowledge regarding wildlife.

   (f) To promote sportsmanship in shikar and to recognise well regulated shooting and fishing, as a means of preserving wildlife and fish so that through wise use the surplus may provide a recreational asset to the nation.

   (g) To carry out publicity and propaganda for the preservation of wildlife in India by means of monographs, journals, films, film strips and other feasible methods.

   (h) To assist members of the Society in obtaining shooting and fishing facilities and facilities for viewing and photographing wildlife in India.

   (i) To conduct research into the problem of Wildlife management in India, and in pursuance of this, to initiate, encourage and, where possible assist in projects for the study of threatened species and related subjects and to provide reference and research facilities for such work.

   (j) To carry on such other activities which will serve the above subjects.

What membership of Wildlife Preservation Society of India will entitle you to ?

1. You will become an active member of the growing group of Wildlife enthusiasts, who enjoy working for and spreading the knowledge of how to conserve India's heritage of Wildlife for posterity.
2. You will be entitled to the full use of the library of the Wildlife Preservation Society and of its reading room.
3. You will receive a membership certificate.
4. You will receive personal Identification and Membership card.
5. You will be entitled to buy all publications of the Society at a concessional rate.
6. You will be entitled to buy at concessional rates the Society's Tie, and the Balance of Nature Game (specially published in colour for its educative and recreational value).
7. You will be supplied "Cheetal", journal of the Society free.

For membership particulars write to Honorary Secretary, Wildlife Preservation Society of India, 7 Astley Hall, Dehra Dun.